JOHNS HOPKINS
SCHOOL of EDUCATION
Institute for Education Policy

Alberta, Canada: How Curriculum and Assessments Work in a Plural School System

Dr. Amy von Heyking

June 2019

Alberta's education system is diverse and respected for its high performance (Darling-Hammond, et al, 2017). Scholars and policymakers often attribute this performance to a set of interrelated factors that govern Alberta's K-12 system, particularly the principle of pluralism, or widespread school choice tied to robust accountability. In other words:

- Acceptance of the principle of school choice in the provision of schools;
- Public funding for diverse school types tied to specific accountability measures;
- Rigorous curricula developed by Alberta Education and mandated for use in all provincial schools; and
- Provincial assessments that measure students' mastery of key curricular outcomes.

Although multiple factors influence student outcomes, those listed above likely contribute to Alberta's capacity to sustain diverse delivery while maintaining high academic standards.

This report provides an overview of Alberta's education system. It identifies key features of Alberta's approach to provision, curriculum, and assessment; explains ongoing or unresolved issues that need attention; and offers lessons from Alberta upon which other school systems might draw.

ALBERTA'S PROVINCIAL SCHOOL SYSTEM

What conditions made it possible for the province to expand the types of schools funded and simultaneously to implement a coherent, rigorous curriculum? What were the barriers, if any, and how were they overcome?

Under Canada's constitution, educational authority resides in the ten provinces. Unlike other federal states, Canada has neither a national department of education nor a national K-12 policy. The provinces and territories have therefore developed distinct and relatively diverse school systems.

Alberta's system has been described as, "the undoubted jewel in the Canadian school choice crown" (Allison, 2015, p. 290). One researcher described it as "pragmatic pluriform," meaning that:

> [Alberta] has structured pluralistic practices into the very architecture of its system. It structurally offers a wide range of options for school choice as well as several means of influencing the content and delivery of schooling. These options empower families and caregivers to provide schooling centred on their student's educational needs and opportunities, including faith-based schooling. (Hiemstra, 2017, p. 1)

The system is indeed "pragmatic rather than principled," (p. 96); the range of schooling options is not the result of coherent design or consistent policy decisions. It has emerged, rather, out of historical compromises, legal challenges, and concessions to political interests. Moreover, some school options are restricted to certain populations or only available in the largest cities of the province. That said, Alberta provides public (state) funding for more school types than any other province in Canada and supports a high standard across all schools by mandating a high-quality curriculum and evaluating school performance through a robust accountability framework.

SCHOOL TYPES

Public Schools

Alberta is the fourth-largest province in Canada with a population of 4.3 million in 2018 (Government of Alberta, 2019). In 2018-19, the province spent approximately $8.4 billion to educate 727,222 students in kindergarten to Grade 12 schooling (Alberta Education, 2018a; Alberta Education, 2019d). The majority of students (67%) attend *public schools*, best described as "tuition-free schools open to all children residing in a provincially determined school jurisdiction catchment zone, supported by taxes and administered by a locally elected school board" (Bosetti, Van Pelt & Allison, 2017, p. 6). Close to 24% attend *Roman Catholic separate schools*. The provincial School Act defines these two systems as "two dimensions" of the fully publicly-funded school system; the right of the Roman Catholic minority to publicly-funded schooling had been in place when the province entered Confederation in 1905 and is therefore enshrined in the Canadian Constitution. A small number of students attend *francophone schools,* implemented in 1993 under Sec. 23 of the *Canadian Charter of Rights and Freedoms*, which guarantees minority education rights for French-speaking parents outside Quebec where numbers warrant. These three systems are fully-funded by Alberta taxpayers, governed by publicly-elected school boards, abide by all regulations approved by Alberta Education, and employ certificated teachers who, upon hiring, become active members of the provincial teachers' professional organization (the Alberta Teachers' Association). All three school systems must accept all eligible students. When Roman Catholic schools enroll non-Catholic students, parents typically sign an agreement acknowledging their understanding that the school culture and curriculum reflect its faith commitment.

In 2017-18, public, Roman Catholic separate and francophone school boards received $6,679 as the base instructional grant per pupil. These boards are also eligible for a range of other provincial grants such as inclusive education grants, grants for plant operations and maintenance, transportation grants, and capital funding. When these grants are added to the total, provincial funding for public, Roman Catholic separate and francophone schools is closer to $12,000 per pupil.

In contrast to state schools in the United States, which are generally identified with district schools, Alberta's publicly-funded systems include a range of choices and alternative programs. Indeed, the extent of the available options accounts for the relatively low percentage of students (around 4%) enrolled in the province's private schools.

Section 21 of the School Act gives publicly-elected local school boards the authority to establish alternative education programs that emphasize "a particular language, culture, religion or subject-matter" or that embody "a particular teaching philosophy" (Province of Alberta, 2018). Like other Canadian jurisdictions and because of federal official bilingualism, most Alberta public and Roman Catholic separate school boards offer French immersion programs. These programs are for students whose parents are not native French speakers, and they offer French as the language of instruction for more than half of the school day. Boards across the province have used the same authority to establish bilingual programs in Arabic, Mandarin, German, Ukrainian, Cree, and others; single-gender schools; Advanced Placement and International Baccalaureate programs; arts-centered programs; and Montessori programs. Sports programs are among the most popular alternatives, with school boards offering hockey, soccer, golf and baseball academies. While not all school boards have opted to offer religious education alternatives, in 2017 there were 45 faith-based schools - or programs within schools - in fifteen of the province's 42 public school boards, educating approximately 8,000 Alberta students, roughly 1.5% of Alberta's public school population (Hiemstra, 2017). Most are nondenominational Christian programs, but Jewish

programs, Muslim schools, and schools grounded in aboriginal spirituality are also supported. All are subject to the accountability measures for public schooling. While all alternative programs are technically "fully-funded" and cannot charge tuition fees, parents and guardians often pay specialized program fees and bussing fees that mean the programs are not available to lower-income families. School boards in Edmonton and Calgary are able to offer a much more diverse set of alternative programs than are school boards in smaller urban centres and rural areas, so most of these school options are actually available to only half of all Albertan families. This remains an unresolved issue for Alberta's education system.

Charter Schools

Notably, Alberta is the only Canadian jurisdiction to allow charter schools. Charter schools were introduced in 1994 in order to provide a means through which to implement innovative school programming. Because of their experimental nature, the School Act capped charter school authorities at 15, although only 13 have ever been approved with 9.500 students currently attending. Most charter schools are in Calgary and have lengthy waiting lists.

Charter schools must be non-profit and are run by their own board, subject to the approval of the Minister of Education. Part of the charter approval process is the requirement that applicants first approach their local public school board to determine if the board will consider implementing it as an alternative program. If the board refuses, the application can proceed to the Minister. Charter schools receive the full per-pupil instructional grant from Alberta Education, may not charge tuition, and must lease available space, usually schools that have been closed by the local public school district. However, charter schools do not receive the capital funding or transportation grants given to other public schools. This means that parents who opt for charter schools still pay additional fees, despite the fact that tuition is covered.

The charter school law includes other departures from the Alberta norm. For instance, while charters must employ certificated teachers, the teachers become associate (as opposed to active) members of the teachers' professional association. While their students do participate in the provincial assessments and they structure their curriculum around the Alberta program of studies, charters have more flexibility in meeting outcomes in ways that are consistent with the terms of their charters. Current charter schools emphasize arts-based programming, a girls' school, STEAM education, inquiry-based learning, gifted education, and direct instruction. Charter schools are the only type of school in Alberta that may not offer religious programming. They are expected to work with university-based researchers to study the impacts of their instruction on student learning, and must demonstrate sustained positive effects in order to renew their charters (Bosetti & Butterfield, 2016).

Critics of the introduction of charter schools in 1994 warned that they were publicly-funded private schools, able to select the students they wished to serve, and available only to those who could afford the transportation costs and other associated fees. Some of these concerns have endured, though enrollment in these schools has remained low because of the legislated cap on the number of schools and the lack of available space (Thompson, Kowch & Gereluk, 2016).

Private Schools

The Alberta School Act makes provision for two categories of private schools: registered and accredited. *Registered private schools* are subject to minimal oversight from Alberta Education.

They are responsible for providing an appropriate educational program to their students, but do not have to employ certificated teachers. They receive no public funding. The Mennonite church communities operate the very few registered private schools in the province. The vast majority of private schools in the province are *accredited* and receive up to 70% of the per pupil grant available to public schools, making them the most generously funded private schools in Canada. In 2017-2018, they received $4,675 as the per pupil base instruction rate. Tied to that funding are a range of regulations. They must: be non-profit and submit audited financial statements to the Minister; teach the prescribed provincial curriculum (described below); employ certificated teachers who can become associate members of the Alberta Teachers' Association; and, participate in the provincial testing program. While there are some elite private schools whose tuition fees put them out of reach of most Alberta families, 63% of students in accredited private schools attend faith-based schools, which make an effort to keep tuition fees affordable for their target clientele. For example, Edmonton Islamic Academy charges $3,350 yearly tuition for a child in Grades 1 to 9, with slightly lower rates for additional children from the same family. Tuition and fees at Glenmore Christian Academy in Calgary range from $6,000 to $7,000, while at Bearspaw Christian School they range from $7,000 to $8,000 annually. Transportation costs are not included.

Public funding for private schools has always been a contentious issue, and there are ongoing efforts by advocacy groups, such as Support Our Students (SOS, 2019) and Public Interest Alberta, to defund private schools. Alberta first legally recognized private schools in 1946. In 1967, because of lobbying efforts of the Christian Reformed private school community, the provincial government implemented a $100 per-pupil grant despite the opposition of the premier and education minister to this initiative (Hiemstra, 2017). Consecutive conservative governments gradually raised this funding throughout the 1970s, establishing it as one-third of the per-pupil instructional grant given to public and separate schools by the end of the decade. Throughout the 1980s, government-sponsored reports and privately-commissioned studies affirmed the principle of parental choice in schooling, and recommended increased funding for private schools. Even so, and even within the ranks of the Progressive Conservative party which held power until 2015, there was considerable opposition to increases in public funding for private schools, and to proposals to expand the grants for which they were eligible (Kachur, 1999). Their success in obtaining increased funding can largely be attributed to strong relationships between Christian private school lobby groups and influential members of the Progressive Conservative caucus. The current funding structure, created in the late 1990s and affirmed by revisions to the School Act in 2000, has public support because it has not resulted in large increases in private school enrollment and because of the accountability measures it imposes on private schools.

Summary

Parents in Alberta choose specialized or alternative programs, charter schools, or private schools for a range of reasons: the programs reflect their values; they meet the unique learning needs of their children; they appreciate the input they have in the culture and governance of the school (Davies & Aurini, 2011; Hiemstra, 2017; Thompson, Kowch & Gereluk, 2016). Studies show that graduates of all types of schools, including religious and non-religious private schools, are active citizens who make significant contributions to the common good through their political involvement, volunteering in community organizations, and making regular charitable donations (Pennings et al, 2012). The sytem and and its funding frameworks have evolved over time, have not weakened the public schools, and have contributed to public support for a school system that reflects and nurtures the cultural and religious pluralism of the population. Alberta students continue to score highly on national and international assessments in reading, math and science (Campbell

et al, 2017). Other provincial assessments of the school system's performance, summarized in Alberta Education's Accountability Pillar, also reassure Albertans of its quality. In order to affirm the principle of school choice, the newly elected United Conservative government has promised to pass a "Choice in Education" act that will lift the cap on the number of charter schools, and potentially revisit levels of funding and the eligibility of alternative programs, and charter and private schools for additional grants (French, 2019).

THE ACCOUNTABILITY PILLAR

Provincial governments throughout the 1980s supported increased choice in schooling by expanding public funding for private schools and introducing legislative changes that enabled alternative educational programs, including faith-based programs, within the public school system. They also initiated system-wide reviews of core curricula and introduced important accountability measures, such as the provincial achievement testing program and Grade 12 diploma examinations. At the same time, Alberta Education launched collaborative projects with 12 school boards to develop "Educational Quality Indicators" that could be used to assess the quality of school systems (McEwan, 1995). Significantly, school board leaders worked with Alberta Education in developing multi-dimensional indicators of system performance that could productively inform planning and decision-making. Ten action research projects were completed under this initiative and the final, summary report, *Achieving Quality*, won an American Educational Research Association policy publication award (McEwan, 1995). By 1992, a policy framework permitting pluralist approaches to school provision and recommendations for a framework to assess system-wide educational quality were in place.

In summary, the restructuring of education during the era of Premier Ralph Klein from 1993 to 1996 did not reflect a shift in the acceptance of the principle of public funding for diverse schools, but instead imposed an accountability framework on the system that in many ways enhanced the power of the ministry. From 1993 to 1996, the government: cut overall funding to education by 12%; reduced the number of school boards from 141 to 63 through consolidation; passed regulations redefining the role of stakeholders (such as parent councils); introduced new funding frameworks for school boards; encouraged business and technology partnerships; expanded the provincial testing program; and, implemented the accountability framework which created performance measures for schools and defined the means of assessment (Bosetti & Gereluk, 2016; Taylor, 2001). The *Government Accountability Act*, passed in 1995, requires all government departments to produce three-year business plans and annual reports of results. For Alberta Education (and by extension all schools receiving taxpayer dollars), this means reporting results annually, according to the requirements of the Accountability Pillar.

Alberta Education explains that the funding system for K-12 education has three pillars: equitable funding, flexibility, and accountability. The ministry states that school authorities receive equitable funding and have the flexibility to use the funding to meet their students' learning needs. They are accountable to the public for their spending and results. This Accountability Pillar:

- Gives schools and school authorities a consistent way to measure their progress using 16 measures.
- Helps identify areas for improvement and set priorities for the future.
- Gives schools and school authorities a wide range of performance data.
- Focuses on more than results from student tests, giving a more complete view of the school system and how it can improve (Alberta Education, 2019a).

Schools' performance is measured and reported by comparing current results against both past performance and provincial standards on a common set of measures for all jurisdictions, using a common evaluation methodology. Data to inform these measures is largely drawn from provincial test results and the responses of students, teachers, and parents to a ministry-created survey. All teachers in K-12 schools and students in Grades 4, 7, and 10 and their parents are invited to respond to the survey. (In small schools, including charter and private schools, all students' parents from Grades 4 to 12 are invited to participate in the survey).

Performance measures are organized into seven categories:

- *Safe and caring schools* (measured through data collected by the survey of students, teachers, and parents).
- *Student learning opportunities* (measured through annual dropout rates, the percentage of students completing high school, and the results of survey questions that ask students, teachers, and parents to indicate their satisfaction with students' opportunities for a broad education, and a quality education).
- *Student learning achievement for Grades K to 9* (measured by results on provincial achievement tests).
- *Student learning achievement for Grades 10 to 12 (*measured by results on diploma examinations, by the percentage of students who write four or more diploma examinations, and by the percentage of students eligible to receive provincial scholarships).
- *Preparing for lifelong learning, world of work, and citizenship* (measured by responses to relevant survey questions, and by the percentage of high school students who go directly to postsecondary education or apprenticeship training immediately after completion of Grade 12).
- *Parental involvement* (measured by teacher and parent response to relevant survey questions).
- *Continuous improvement (*measured by teacher and parent response to relevant survey questions).

Alberta Education generates reports for school districts of individual schools' achievement of these performance measures; the districts make the reports publicly available. Alberta Education's evaluations, or levels of achievement, are color-coded to assist educators and parents in reading the results. Below is an example of the Accountability Pillar report for a Calgary elementary school:

Measure Category	Measure Category Evaluation	Measure	Dr. E. W. Coffin School			Alberta			Measure Evaluation		
			Current Result	Prev Year Result	Prev 3 Year Average	Current Result	Prev Year Result	Prev 3 Year Average	Achievement	Improvement	Overall
Safe and Caring Schools	Excellent	Safe and Caring	93.6	94.3	94.7	89.5	89.2	89.1	Very High	Maintained	Excellent
Student Learning Opportunities	n/a	Program of Studies	84.8	88.8	84.1	81.9	81.3	81.4	Very High	Maintained	Excellent
		Education Quality	90.0	96.8	96.0	90.1	89.5	89.5	Very High	Declined	Good
		Drop Out Rate	n/a	n/a	n/a	3.2	3.5	3.5	n/a	n/a	n/a
		High School Completion Rate (3 yr)	n/a	n/a	n/a	76.5	76.5	75.5	n/a	n/a	n/a
Student Learning Achievement (Grades K-9)	Excellent	PAT: Acceptable	93.2	94.4	92.9	73.6	72.9	73.4	Very High	Maintained	Excellent
		PAT: Excellence	47.7	35.5	36.1	19.4	18.8	18.6	Very High	Maintained	Excellent
Student Learning Achievement (Grades 10-12)	n/a	Diploma: Acceptable	n/a	n/a	n/a	85.0	85.2	85.1	n/a	n/a	n/a
		Diploma: Excellence	n/a	n/a	n/a	21.0	21.0	20.5	n/a	n/a	n/a
		Diploma Exam Participation Rate (4+ Exams)	n/a	n/a	n/a	54.6	54.4	53.5	n/a	n/a	n/a
		Rutherford Scholarship Eligibility Rate	n/a	n/a	n/a	60.8	n/a	n/a	n/a	n/a	n/a
Preparation for Lifelong Learning, World of Work, Citizenship	n/a	Transition Rate (6 yr)	n/a	n/a	n/a	59.4	59.7	59.3	n/a	n/a	n/a
		Work Preparation	73.8	79.4	84.1	82.6	82.0	81.1	Intermediate	Maintained	Acceptable
		Citizenship	90.7	91.8	91.7	83.9	83.5	83.4	Very High	Maintained	Excellent
Parental Involvement	Good	Parental Involvement	82.0	84.4	88.8	80.9	80.7	80.5	High	Maintained	Good
Continuous Improvement	Excellent	School Improvement	88.3	86.1	85.5	81.2	79.6	80.0	Very High	Maintained	Excellent

The report indicates excellent achievement both in terms of its current results and its results over time on the performance measures. In contrast, this report indicates concerns about the learning achievement at a high school for at-risk youth:

Measure Category	Measure	Victoria Park High			Alberta			Measure Evaluation		
		Current Result	Prev Year Result	Prev 3 Year Average	Current Result	Prev Year Result	Prev 3 Year Average	Achievement	Improvement	Overall
Safe and Caring Schools	Safe and Caring	91.2	91.5	91.1	89.0	89.5	89.4	Very High	Maintained	Excellent
Student Learning Opportunities	Program of Studies	57.2	49.9	56.6	81.8	81.9	81.7	Very Low	Maintained	Concern
	Education Quality	91.4	88.8	90.8	90.0	90.1	89.9	Very High	Maintained	Excellent
	Drop Out Rate	19.8	15.7	21.6	2.3	3.0	3.3	Very Low	Maintained	Concern
	High School Completion Rate (3 yr)	27.3	19.6	12.8	78.0	78.0	77.0	Very Low	Improved Significantly	Acceptable
Student Learning Achievement (Grades K-9)	PAT: Acceptable	0.0	10.0	5.4	73.6	73.4	73.3	Very Low	Maintained	Concern
	PAT: Excellence	0.0	0.0	0.0	19.9	19.5	19.2	Very Low	Maintained	Concern
Student Learning Achievement (Grades 10-12)	Diploma: Acceptable	70.6	69.8	71.9	83.7	83.0	83.0	Very Low	Maintained	Concern
	Diploma: Excellence	7.3	5.7	7.3	24.2	22.2	21.7	Very Low	Maintained	Concern
	Diploma Exam Participation Rate (4+ Exams)	3.2	0.0	0.0	55.7	54.9	54.7	Very Low	Improved	Issue
	Rutherford Scholarship Eligibility Rate	25.6	35.9	35.8	63.4	62.3	61.5	n/a	Declined Significantly	n/a
Preparation for Lifelong Learning, World of Work, Citizenship	Transition Rate (6 yr)	15.6	17.1	14.1	58.7	57.9	59.0	Very Low	Maintained	Concern
	Work Preparation	91.7	90.5	89.8	82.4	82.7	82.4	Very High	Maintained	Excellent
	Citizenship	83.6	82.1	82.0	83.0	83.7	83.7	Very High	Maintained	Excellent
Parental Involvement	Parental Involvement	78.3	69.0	72.1	81.2	81.2	81.0	Intermediate	Maintained	Acceptable
Continuous Improvement	School Improvement	84.4	83.8	85.5	80.3	81.4	80.7	Very High	Maintained	Excellent

In this case, the fact that the school's achievement on provincial tests and diploma examinations is lower than the provincial average, does not indicate a failing school. Rather, the fact that the report notes that the school offers a safe and caring community for students who have not experienced success in other school settings, finds the students are well-prepared for learning, work and citizenship, and says that the school is improving, are indications that the school is having some success in supporting students in meeting their learning goals.

While the Accountability Pillar provides important information to the public about the performance of schools that receive public funding, there are concerns about the validity of the survey instruments used to collect information and the limited nature of the performance measures given the diverse school contexts to which they are applied. For example, the high school shown above received an evaluation of very low achievement because few of its students write four or more diploma examinations, but the goals of students in these schools typically do not include university entrance or even a high school diploma; these students often require only specialized courses as entrance requirements for vocational programs. Critics of the province's accountability framework argue that they impose standardization on a system that values differentiation. For example, the Accountability Pillar does not account for the diverse and specialized mandates of alternative, charter, and some private schools. Presumably, if parents opt to send their child to a hockey academy or a ballet school, they should know if graduates of the program reach their goals for postgraduate training or a career in these fields. Parents who send their children to bilingual programs should have some assurance that the programs graduate students with fluency in the language. But the performance measures of the Accountability Pillar do not include any measure of the success of specialized programs or schools in meeting their own goals.

Indigenous Schooling

Alberta is home to 45 First Nations in three treaty areas (Treaties 6, 7 and 8) (Indigenous and Northern Affairs Canada, 2010). Alberta Education acknowledges a gap between the achievement of the province's indigenous students and the rest of the student population. Addressing this is a priority for both the provincial ministry and the school districts, both of which have implemented initiatives designed to better meet the needs of indigenous students.

The current revision of the provincial school curriculum integrates First Nations, Métis, and Inuit (FNMI) content and perspectives into all subject areas. New provincial teaching and leadership quality standards require all classroom teachers and school and district leaders to meet a standard of foundational knowledge of FNMI history and worldviews and be skilled in infusing this into their instruction (Alberta Education, 2019b). Indigenous educators are included on all provincial curriculum committees, and Alberta Education has established a FNMI Directorate to inform the policy and practices of the provincial school system (and school districts) related to the schooling of indigenous students not living on reserve. Many public and separate school boards offer a range of supports to these students: specialized indigenous programming; mentorship from elders in First Nations communities; liaisons with parents and/or guardians; counselling; literacy and early intervention programs, etc.

Under the federal Indian Act, the federal government is responsible for the education of First Nations students who live on the 140 reserves in the province. Every reserve has an Education Director who serves as the liaison with Indian and Northern Affairs Canada (INAC). Some bands in Alberta run their own school system. The per pupil grant they receive is negotiated between the band and INAC so varies widely across the province, with some bands receiving $8,000 to $9,000 per pupil, and others more than double that amount. Band-run schools on reserve must teach the Alberta program of studies, and students must complete diploma examinations and meet other requirements for a high school diploma. Use of provincial achievement tests is optional though most reserve schools use them. Their results are reported to Alberta Education but not the general public, because the schools are not subject to the provincial Accountability Pillar, but are accountable to INAC.

Reserve schools teach their own indigenous language courses and adapt the programs of studies

in other subjects. They infuse indigenous ways of knowing and cultural practices into the curriculum and school culture. One reserve school system is currently negotiating with Alberta Education to develop its own K-12 program of studies for use instead of the provincially mandated one. In addition to the provision of more culturally-relevant curricula and the implementation of appropriate social supports for indigenous students, other initiatives such as indigenous teacher education programs and specialized professional learning opportunities for on-reserve teachers are also directed toward improving the educational outcomes of Alberta's indigenous students.

CURRICULUM

How and when did the province transition from a skill- to a content-based curriculum? What do the specific curricula in major subjects include? What variability occurs within the provincial curriculum across the distinctive schools? Is there a market for distinctive textbooks and online guides? Finally, what, if any, are the current pressure points around the provincial curriculum?

Until the 1970s, curriculum development for Alberta schools was the responsibility of a small group of officials in the (then) provincial Department (now Ministry) of Education, sometimes with the advice of subject-area experts from the universities. This process was criticized as hierarchical, resulting in an inflexible product – a program of study - disconnected from the reality of local school contexts and the interests of students.

In the early 1970s, the Department began to experiment with decentralizing curriculum development. For instance, it established subject-specific curriculum committees that were chaired by Department officials and comprised of classroom teachers who had been nominated by their superintendents because of their expertise and experience. Teachers came from a range of schools and regions in the province to ensure appropriate considerations were given to local school and community contexts in the development process. These subject committees were expected to suggest changes to content and/or teaching resources as required. Alberta Education also encouraged school boards to develop courses locally and then submit their proposals for approval. The end result: the provincial curriculum was essentially constantly under review.

Teachers raised concerns about this process, arguing that few possessed the time or expertise to contribute appropriately and that, absent strong leadership from the provincial Department, the various subject-area curricula lacked coherence and clarity (Alberta, Department of Education, Curriculum Branch, 1974). Such concerns convinced the Department to redesign the curriculum development process.

Thus, throughout the late 1970s, Alberta Education, the Alberta Teachers' Association, and the Alberta School Trustees' Association co-sponsored several curriculum decision-making conferences. Invited participants included education scholars from the universities as well as representatives from school districts and the provincial Home and School association. A new curriculum development process emerged from these consultations. A few benchmark events and reports follow below.

1974: The Former Social Studies Curriculum

The first conference in 1974 used a recent revision of the social studies curriculum as a case

study in what had gone wrong. This curriculum was met with substantial public criticism and teacher resistance for its focus upon the values clarification process and minimal attention to historical content and geography (von Heyking, 2006). Additional criticisms were the social studies revision's vague and repetitive content and long list of approved teaching resources with which teachers needed to develop individual units – a substantial burden.[1]

The participants in the 1974 conference recommended that Alberta Education exercise much greater leadership in developing the provincial curriculum while consulting more broadly with stakeholders along the way. They also stressed that the Department guide and approve the design of suitable teaching materials (Alberta, Department of Education, Curriculum Branch, 1974).

These recommendations were implemented relatively quickly; by 1977, Alberta Education was guiding 12 curriculum coordinating committees representing the major subject areas, on which 120 teachers and other relevant stakeholders served (Alberta Education, ATA, ASTA, 1977). Their work was coordinated and supervised by the newly instituted Curriculum Policies Board which was led by Alberta Education officials, but included members from a range of stakeholder groups so as to facilitate consultation and more coherent guidance of the curriculum development process. The Curriculum Policies Board launched a series of studies intended to inform a wholesale revision of the goals and content of the K-12 curriculum. The most pivotal reports and their consequences are summarized below.

The Harder Report, 1977

Beginning with a revisioning of the goals for high school graduates, the Board commissioned a study of the requirements for a high school diploma. The report, nick-named the Harder Report after its author (Jake Harder, Associate Director of Curriculum for Alberta Education), acknowledged widespread public dissatisfaction with the performance of the province's schools and argued:

> There is movement across this continent and in parts of Europe encouraging an increased specificity of knowledge and more concentration on skill development in both academic and career areas. There is concern for the development of positive attitudes to work and civic responsibilities. There is a concern to establish standards that are realistic and can be reached by teaching through a systematic approach (Alberta Education, 1977, p. v).

The Harder Report recommended that Alberta Education adopt more specific, realistic goals for its schools that could clearly guide curriculum development and inform accountability measures. Specifically, it called for more instructional time in the core subjects, more specific articulation of knowledge and skill outcomes in each, fewer electives, and greater accountability. Harder's approach influenced policy and practice for twenty years (Mazurek, 1999).

Secondary Review Report, 1984

In 1981, Alberta Education introduced the Provincial Achievement Testing (PAT) program in Grades 3, 6 and 9, and in 1983, diploma examinations for Grade 12. In 1984, Alberta Education initiated a review of the provincial secondary programs simultaneously with its review of the School Act.

The Secondary Review report echoed *Harder* in defining clear goals for secondary education:

> The purpose of secondary education is twofold: to provide a broadly-based education

1 It is of interest to stakeholders in the United States that teachers requested, and ultimately received, a coherent program of study that resulted in commissioned textbooks rather than varied, and uneven resources.

> aimed at stimulating and nurturing the abilities of students; and to provide the initial stages of career preparation by developing basic work skills, with an emphasis on fostering appropriate attitudes and awareness of the requirements of the world of work" (Alberta Education, 1984, p. 5).

In response to the Secondary Review committee's recommendation, Alberta Education articulated guiding principles for curriculum development, at least two of which clearly informed the process in place for the next three decades:

> 1: The secondary school, in cooperation with other agencies in society, must assist each student to become a competent, confident and responsible individual. However, the secondary school must assume primary responsibility for the intellectual development of each student and for fostering the desire for lifelong, self-directed learning (Alberta Education, 1985, pp. 7-8).
>
> 2: The development and implementation of the instructional program must take into account the following considerations:
>
> - The nature and needs of the learner.
> - The nature and needs of a changing society.
> - The nature of knowledge in each subject area.
> - The learning environment (Alberta Education, 1985, p. 8).

Policymakers and practitioners in the United States will note the division of labor: schools must work in tandem with other social agencies to ensure students' emotional and social development, but exercise primary responsibility in students' intellectual development.

CURRICULUM DEVELOPMENT 1985 – 2015

From the mid-1980s until 2015, Alberta Education provided remarkable continuity within the expectations for the curriculum and within the process of curriculum development. The curriculum was characterized by an articulation of the content knowledge and skills that all students should master, and by a structured, collaborative process for revisions.

Under Sec. 39 of the provincial School Act, the Minister of Education has the authority to authorize and prescribe provincial or school-board courses of study and instructional materials. The Minister exercises these responsibilities through the provincial Curriculum Branch. Under Sec. 18(1)(b), teachers must "teach the courses of study and education programs that are prescribed, approved or authorized pursuant to this Act" (Province of Alberta, 2000). Therefore, provincial programs of study are legal documents that state what students are supposed to learn and be able to do in all subject areas.

While education is a provincial responsibility under the Canadian constitution, the provinces and territories work cooperatively on some curriculum projects in order to define common program goals and learner outcomes, simplify students' transitions among jurisdictions, and facilitate the development of common resource materials. The national mechanism for such collaboration is the Council of Ministers of Education, Canada (CMEC), which was established in 1967.[2] Alberta's current secondary science curriculum was informed by a common framework developed by the Council in 1997.

2 The most recent memorandum of agreement states that one of the Council's duties is to provide "a mechanism through which to jointly undertake activities, projects, research, and initiatives in areas of common interest (CMEC, 2015, p.1).

In 1993 Alberta joined the other western Canadian provinces and the territories in creating the *Western Canadian Protocol for Collaboration in Basic Education Kindergarten to Grade 12.* With the addition of Nunavut in 2000 this was renamed the *Western and Northern Canadian Protocol* (WCNP). The purpose of the protocol is to "establish common educational goals," "remove obstacles to accessibility for individual learners," and make "optimum use of limited educational resources" (WCNP, 2006, p. 1). Common frameworks of learner outcomes developed by the WCNP in English language arts and mathematics have provided the foundation for the programs of study in these subject areas in Alberta.

From the mid-1980s to 2015, the curriculum development process was characterized by remarkable continuity. The common learning outcomes developed in collaboration with other provinces and territories often led to a revision of existing programs of study; the Ministry also led reviews following major changes in education policy, whenever authorized resources had been deemed obviously out of date or in the face of public pressure for change.

Three main groups were directly involved with curriculum development and/or revision:

- Alberta Education. Ministry staff took leadership of the process. Working under the authority of the Minister, they ensured that programs reflected the government's priorities, set timelines for revision, and coordinated research or information-gathering required to support the process.
- Subject specialists. Advisory committees for each of the subject areas were consulted throughout the process. The committees typically consisted of members representing the Alberta Teachers' Association, school board administrators, scholars from the universities, and those representing relevant business and/or community organizations. These advisory committees approved the goals and principles guiding program development, and vetted drafts of specific curriculum documents.
- Teachers. The third group directly involved in curriculum development were teachers who were either seconded to the Ministry or nominated by their school districts to work on program development in addition to maintaining their teaching responsibilities. These teachers worked under the direction of Ministry officials to write programs of study; develop general and specific learner outcomes; validate draft programs; and, review potential learning resources (Alberta Education, 1998).

Public Comment and New Resources

Major revisions of programs also included a stage for public consultation. Public meetings, often facilitated by school boards and online questionnaires were used to gather information at the outset of the process. Broad, open-ended questions such as, "Are the current knowledge, skills, and attitudes of the program the most important for our students to learn?" often guided discussions during this opening stage. Alberta Education circulated public drafts of the programs of study including scope and sequence of topics and sample learner outcomes, and held frequent and focused consultation meetings for educational stakeholders.

Once a suitable draft of a program was developed, it would go through a process of validation and field testing. During this stage, Alberta Education would begin to develop appropriate teaching and assessment materials and also to invite publishers to submit proposals to develop basic resources such as textbooks and teaching guides. The Ministry often selected two publishers to work with them in developing these basic resources, which would then be authorized by the Minister for use in schools. Once this final stage in the development process was reached, the task

of professional learning and implementation was the responsibility of Alberta Education, school boards, and the Alberta Teachers' Association.

Issues with Program Development

Despite its successes, Alberta's curriculum faced several core challenges and criticisms between the mid-1980s and 2015.

- Lengthy process. The process of curriculum development and/or revision was often a lengthy one. For example, the most recent revision of the social studies program of studies began in the late 1990s when Alberta Education decided to withdraw from its participation in the Western Canadian Protocol project on social studies curriculum. Instead the Ministry undertook focused work with advisory groups to develop the goals and principles of the program adapting selected elements of the WCP framework. A consultation draft of the program was released in 2002 and the validation draft in 2003. The curriculum was implemented in stages, beginning with the elementary grades in 2005. Full implementation occurred in 2008-2009, ten years after the program review was initiated.
- Uneven coordination. Other concerns often raised during the curriculum development process included a *lack of coordination* with Assessment Branch, resulting in delays in updating achievement tests and with other advisory committees so that there were occasional disconnects among learner expectations for different subject areas. For example, outcomes in science courses assumed that students could apply certain mathematical concepts that were not in fact addressed in prior or even the same grade level mathematics curriculum: science curricula often assume students have a solid background in multiplying fractions and basic geometry and algebra.
- Lags in resource development. The *timing* of the development of authorized resources for new programs was also problematic. The resources, such as textbooks, were typically written on the basis of the validation draft of the program of study, so teachers who were field-testing the program did not have access to any teaching resources. Often, textbooks and other teaching materials went through several drafts before being authorized, so a new program of studies could be in place for a year or two before appropriate and adequate teaching materials became widely available.

These concerns, coupled with new initiatives related to the curriculum's content, contributed to the implementation of a new curriculum development process between 2015 and the present time. These matters are discussed in full below.

CONTENT OF THE CURRICULUM

Alberta's curriculum documents (programs of study) are lengthy and detailed. For example, the Elementary English language arts curriculum is 95 pages, junior high school science program of Study is 75 pages, and the senior high school social studies program is 85 pages. They articulate the philosophy of the program, its grounding principles (understandings of the nature of the subject, theory of learning), and its general and specific outcomes which are typically expressed as required knowledge, skills, and attitudes. Programs of study, therefore, describe *what* students

should learn and be able to do; they do not typically address *how* they should be taught. Because each subject area has its own advisory committee and writing group and often draws its framework from different foundational documents, the various subject area programs of study are organized differently. Historically, there has been no common design of curriculum documents. This is a point of contention because there is little coherence or consistency among subject areas. Teachers need to learn how to read each subject-specific program of studies and how to use it to guide their planning.

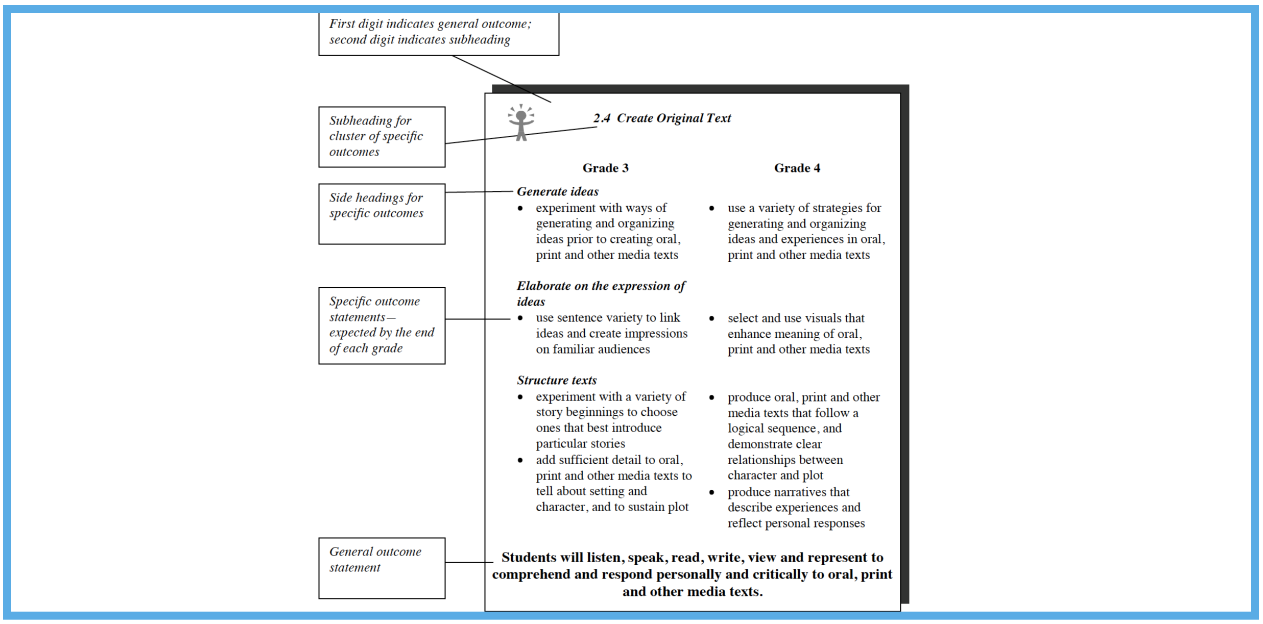
The subject-specific programs of study are accompanied by detailed (online) guides for implementation which include specific learning activities and links to resources. The fact that the programs of study are detailed and that curriculum-specific teaching resources are provided accounts for the fair amount of consistency in program delivery across the province, despite the range of school contexts.

English Language Arts

The current kindergarten to Grade 9 program of studies in English language arts was informed by the Western Canadian Protocol framework developed in 1998. This framework defined the goal of the program: "The aim of English language arts is to enable each student to understand and appreciate language, and to use it confidently and competently in a variety of situations for communication, personal satisfaction, and learning" (Alberta Learning, 2000, p. 2). The program is organized around six language arts: listening and speaking; reading and writing; viewing and representing. It lists five general outcomes:

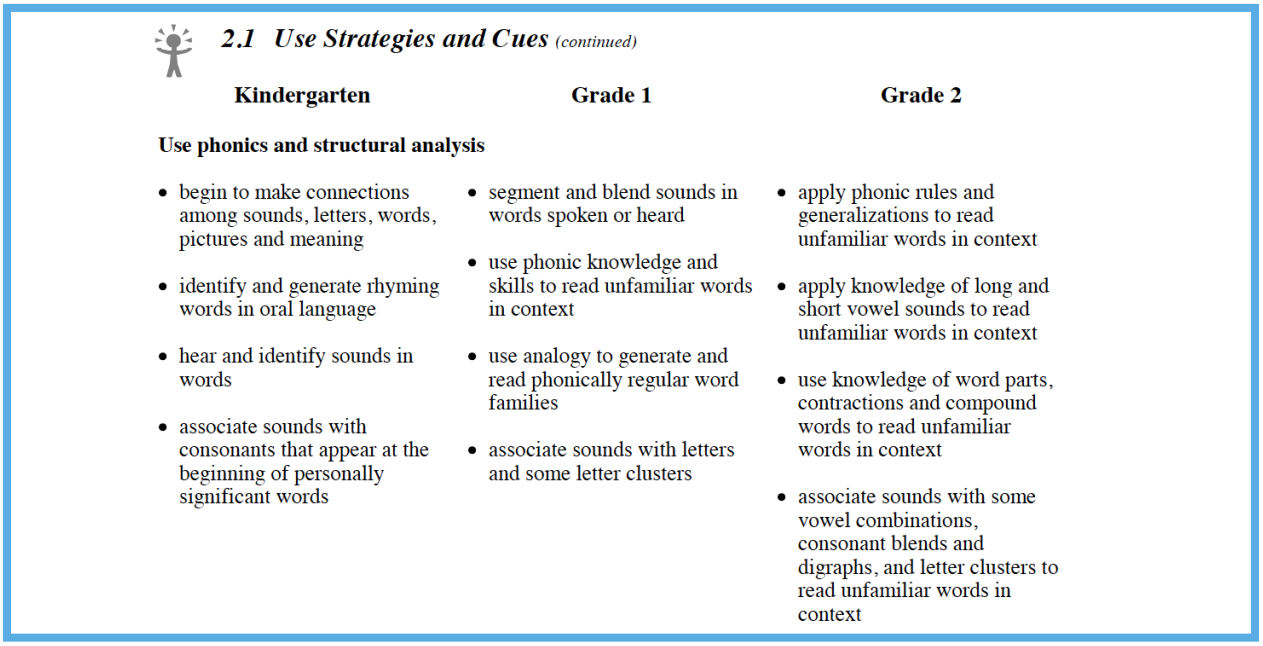
1. Students will listen, speak, read, write, view, and represent to explore thoughts, ideas, feelings and experiences.
2. Students will listen, speak, read, write, view, and represent to comprehend and respond personally and critically to oral, print and other media texts.
3. Students will listen, speak, read, write, view, and represent to manage ideas and information.
4. Students will listen, speak, read, write, view, and represent to enhance the clarity and artistry of communication.
5. Students will listen, speak, read, write, view, and represent to respect, support, and collaborate with others.

Each general outcome has subheadings that identify related specific outcomes and guides are provided to assist teachers in reading the curriculum document:



(Alberta Learning, 2000a, p. 5)

The program of studies also details grade level indicators:



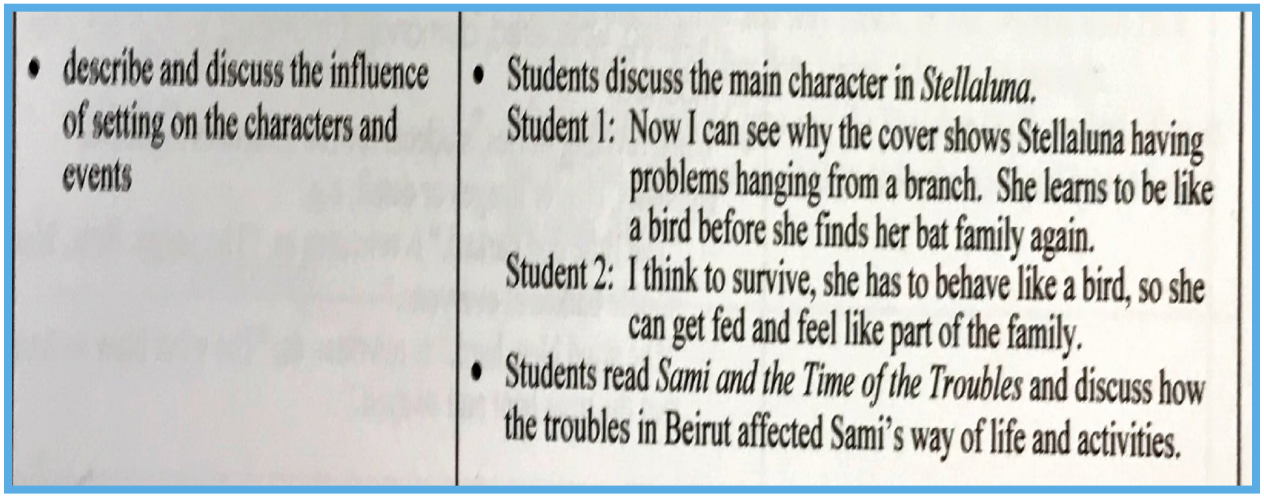
(Alberta Learning, 2000a, p. 26)

While the English language arts program of studies largely articulates skill outcomes, it indicates that students should engage with a wide variety of texts (written, oral, visual, combination). *It does not prescribe specific literature.*

In addition to using language competently, the senior high school program of studies identifies a second aim of English language arts: "to encourage, in students, an understanding and appreciation of the significance and artistry of literature" (Alberta Learning, 2003, p. 1). In senior high school, there are two course sequences (-1 for students planning to attend university; -2 for others). Both are organized around the same five general outcomes as the younger grades, but in the high school course, 2/3 of the course time is expected to be devoted to general outcomes 2 and 4, though the program emphasizes that the general outcomes are interrelated and interconnected. Given the emphasis on understanding and appreciating literature, the high school program of studies articulates specific expectations related to the kind of literature students should study:

- A minimum of one-third of texts studied must be Canadian.
- Students must study extended texts in each high school course: novel, book-length nonfiction, feature film, modern play, Shakespearean play (four out of five).
- Students must study a variety of shorter texts in each course: poetry, short story, visual/multimedia texts, essays, popular nonfiction (informative, persuasive texts).
- Despite the fact that the English language arts curriculum identifies genres but does not identify specific literary texts to study, there is considerable consistency in the texts that students study around the province for a number of reasons.

Teachers rely heavily on support materials created by Alberta Education for the program of studies, including a document with illustrative examples intended to help teachers better understand how they might attend to specific outcomes in their classrooms. These examples often include titles of specific texts:



• describe and discuss the influence of setting on the characters and events	• Students discuss the main character in *Stellaluna*. Student 1: Now I can see why the cover shows Stellaluna having problems hanging from a branch. She learns to be like a bird before she finds her bat family again. Student 2: I think to survive, she has to behave like a bird, so she can get fed and feel like part of the family. • Students read *Sami and the Time of the Troubles* and discuss how the troubles in Beirut affected Sami's way of life and activities.

(Alberta Learning, 2000b, p. 9)

Some texts are identified (and even embedded) into the online guide to implementation for the program. For example, the kindergarten to Grade 9 guide includes a short video of students in Grade 9 sharing how their understanding of the short story, "The Most Dangerous Game," is informed by other related texts. The high school guide to implementation includes sample teaching units and learning activities framed around specific texts, including films. The texts included as examples in these teaching resources are commonly used by teachers.

Anthologies of shorter readings (short stories, poetry, informational text) were developed by selected publishers in consultation with the Education ministries of the provinces and territories

involved in the WCNP. Examples include *Collections and Sightlines* (Prentice-Hall), *Cornerstones and Crossroads* (Gage), *Identities and Echoes* (Oxford University Press), and Nelson's *Language Arts.* These are authorized resources with detailed teaching guides. Teachers are not compelled to use these collections, but they are purchased by schools, widely available, and convenient for teachers to use. Longer texts approved for Grades 4 to 12 are listed in Alberta Education's *Authorized Novels and Nonfiction Annotated List* (2005a). This list includes about ten titles per grade, reviewed and approved for use in novel studies, or as a common reading for extended study. Again, teachers are not restricted to these titles, but schools purchase class sets so they are often the only titles available. They have undergone a review process so teachers feel confident using them, so they remain the focus of studies for many years. Surveys conducted in 1996 and 2006 indicate the continuity in teachers' text selections for Grade 10 English language arts. *To Kill a Mockingbird* and *Romeo and Juliet* were the most popular novel and play by a large margin, as they had been for decades before (Mackey, et al, 2012).

So, in spite of a program of studies document that stresses skill rather than knowledge outcomes and identifies processes rather than content, there is remarkable uniformity across the province in the literature students engage with at particular grade levels. This is due to the widespread availability of specific vetted, approved texts, because of the authorized resources that help teachers implement the program with fidelity.

Social Studies

The Alberta social studies program of studies explains that "Social studies provides opportunities for students to develop the attitudes, skills, and knowledge that will enable them to become engaged, active, informed, and responsible citizens" (Alberta Education, 2005b, p. 1). The program rationale explains that the subject is "an issues-focused and interdisciplinary subject that draws upon history, geography, ecology, economics, law, philosophy, political science, and other social science disciplines" in order to help students develop the capacities they need as citizens, "engaged in the democratic process and aware of their capacity to effect change in their communities, society and world" (Alberta Education, 2005b, p. 1). The program is grounded in the core concepts of citizenship and identity and attends to multiple perspectives (indigenous, francophone, pluralist) on each issue or topics.

Like the English language arts program, the social studies curriculum mandates that students develop important skills: critical and creative thinking; historical and geographic thinking; cooperation and social participation; research skills; and, communication and media literacy skills. Unlike the ELA program, the social studies curriculum directs teachers to develop those skills within the context of mastering specific content. Every grade level specifies two or three general outcomes that frame more specific content-driven units of study. In the primary grades, students begin with a study of citizenship and identity in their own communities, and then move on to examinations of selected communities in other parts of Canada, and of countries on every continent. In the upper elementary grades, they study the geography and history of the province and of Canada. Grade 6, the first year with a provincial achievement test, focuses on the concept of democracy by examining historical models of democracy (Ancient Athens, and the Iroquois Confederacy), and the structure and function of local and provincial government.

The specific scope and sequence of the elementary program is shown below:

Grade	Grade Title and General Outcomes	Linkages and Sequencing
Kindergarten	**Being Together** K.1 I Am Unique K.2 I Belong	Kindergarten emphasizes a strong sense of identity and self-esteem and is a student's introduction to citizenship.
One	**Citizenship: Belonging and Connecting** 1.1 My World: Home, School, Community 1.2 Moving Forward with the Past: My Family, My History and My Community	Grade 1 is an introduction to active and responsible citizenship and introduces the concept of community. The concept of historical thinking is applied to the study of community.
Two	**Communities in Canada** 2.1 Canada's Dynamic Communities 2.2 A Community in the Past	Grade 2 expands on the concept of community through an examination of specific characteristics of communities in Canada. Building on the introduction of historical thinking in Grade 1, Grade 2 students will examine how a community changes over time.
Three	**Connecting with the World** 3.1 Communities in the World 3.2 Global Citizenship	Grade 3 continues to build on the knowledge of community and citizenship by examining diverse communities in the world. Grade 3 students will be introduced to the concepts of global citizenship and quality of life.
Four	**Alberta: The Land, Histories and Stories** 4.1 Alberta: A Sense of the Land 4.2 The Stories, Histories and People of Alberta 4.3 Alberta: Celebrations and Challenges	Grade 4 introduces specific geographic skills through an examination of Alberta and its cultural and geographic diversity. Linkages to literature and the continued development of historical thinking are reinforced through stories and legends. Archaeology and paleontology are also introduced in Grade 4 to further develop historical thinking skills.
Five	**Canada: The Land, Histories and Stories** 5.1 Physical Geography of Canada 5.2 Histories and Stories of Ways of Life in Canada 5.3 Canada: Shaping an Identify	Grade 5 examines the foundations of Canada through its physical geography, the ways of life and heritage of its diverse peoples. Grade 5 presents events and issues that have impacted citizenship and identity in the Canadian context over time.
Six	**Democracy: Action and Participation** 6.1 Citizens Participating in Decision Making 6.2 Historical Models of Democracy: Ancient Athens and the Iroquois Confederacy	Grade 6 emphasizes the importance of active and responsible participation as the foundation of a democratic society. Students will examine how the underlying principles of democracy in Canada compare to those of Ancient Athens and the Iroquois Confederacy.

(Alberta Education, 2005b, p. 11)

Grade 7 social studies consists of a detailed examination of pre- and post-Confederation Canadian history and Grade 8 focuses on selected case studies of cultural isolation, adaptation, and conflict from world history. Grade 9, the next provincial achievement test year, focuses on the concepts of citizenship, identity, and quality of life through an examination of Canada's constitution, its federal political system, justice system, and the principles of market and mixed economies in

Canada and the United States. An overview is provided here:

Grade	Grade Title and General Outcomes	Linkages and Sequencing
Seven	**Canada: Origins, Histories and Movement of People** 7.1 Toward Confederation 7.2 Following Confederation: Canadian Expansions	Grade 7 provides a comprehensive examination of Canadian history preceding and following Confederation. The concept of intercultural contact is introduced through an examination of migration and immigration. Grade 7 forms the foundation for the continued dialogue on citizenship and identity in Canada.
Eight	**Historical Worldviews Examined** 8.1 From Isolation to Adaptation: Japan 8.2 Origins of a Western Worldview: Renaissance Europe 8.3 Worldviews in Conflict: The Spanish and the Aztecs	Grade 8 expands on the concept of intercultural contact and continues to develop historical thinking skills through an examination of past societies in different parts of the world.
Nine	**Canada: Opportunities and Challenges** 9.1 Issues for Canadians: Governance and Rights 9.2 Issues for Canadians: Economic Systems in Canada and the United States	Grade 9 focuses on citizenship, identity and quality of life and how they are impacted by political and legislative processes in Canada. The role of economic systems in Canada and the United States will also be examined.

(Alberta Education, 2005b, p. 12)

The high school program is more explicitly issues-focused. Like other senior high school subjects, there are two streams of courses (-1 for students planning to attend university; -2 for others), though the courses at each grade level focus on the same concept. The senior high school courses define a key issue and related issues that typically guide inquiry units of instruction. In Grade 10, students explore the question, "To what extent should we embrace globalization?"; in Grade 11, "To what extent should we embrace nationalism"; and, in Grade 12, "To what extent should we embrace an ideology?" with liberalism being the focus of study.

In each case, the concept and issue are explored in historical, geographical, and contemporary contexts, as outlined here:

Senior High School Course Titles	Linkages and Sequencing
10-1 Perspectives on Globalization **10-2 Living in a Globalizing World**	Grade 10 explores multiple perspectives on the origins of globalization and the local, national and international impacts of globalization on identity, lands, cultures, economies, human rights and quality of life.
20-1 Perspectives on Nationalism **20-2 Understandings of Nationalism**	Grade 11 explores the complexities of nationalism in Canadian and international contexts and includes study of the origins of nationalism and the influence of nationalism on regional, international and global relations.
30-1 Perspectives on Ideology **30-2 Understandings of Ideologies**	Grade 12 explores the origins and complexities of ideologies. Students will investigate, analyze and evaluate government policies and actions and develop individual and collective responses to contemporary local, national and global issues.

(Alberta Education, 2005b, p. 12)

In kindergarten to Grade 9, specific knowledge outcomes indicate the particular content students should learn. The fact that they are framed as questions is intended to emphasize that they should be taught through units of critical inquiry. For example, a teacher might frame a unit around the question of whether or not the federal government should build the Trans-Canada pipeline, but through this inquiry, students would be expected to meet the following outcomes:

Students will:

9.1.4 examine the structure of Canada's federal political system by exploring and reflecting upon the following questions and issues:

- How are laws passed in the federal political system? (PADM)
- What is the relationship between the executive, legislative and judicial branches of Canada's federal political system? (PADM)
- What processes are used to determine Members of Parliament (MPs) and Senators? (PADM)
- To whom are Members of Parliament and Senators accountable? (PADM, C)
- What is the role of political parties within Canada's federal political system? (PADM, C)
- What is the role of the media in relation to political issues? (PADM, C)
- How do lobby groups impact government decision making? (PADM, C)
- To what extent do political and legislative processes meet the needs of all Canadians? (PADM, C)

Likewise, the high school social studies program of studies specifies content within the knowledge and understanding outcomes, like these, which fall under an examination of economic globalization in Grade 10:

Students will:

3.3 explore understandings of contemporary economic globalization (GC, ER)

3.4 examine the foundations of contemporary globalization (F. A. Hayek, Bretton Woods Conference, Milton Friedman) (TCC, PADM, ER)

3.5 analyze factors contributing to the expansion of globalization since the Second World War (international agreements, international organizations, transnational corporations, media and transportation technologies) (TCC, GC, ER, PADM)

3.6 analyze political and economic challenges and opportunities of globalization (trade liberalization, foreign investment, economic growth, privatization, outsourcing, knowledge economy) (ER, PADM, GC)

3.7 explore multiple perspectives regarding the relationship among people, the land and globalization (spirituality, stewardship, sustainability, resource development) (LPP, CC, ER, GC)

3.8 evaluate actions and policies associated with globalization that impact the environment (land and resource use, resource development agreements, environmental legislation) (LPP, ER, GC)

3.9 analyze multiple perspectives on sustainability and prosperity in a globalizing world (ER, LPP, GC)

(Alberta Education, 2007c, p. 23)

Social studies teachers in Alberta describe this program of studies as "content heavy" and have expressed concerns about the number of knowledge outcomes, the repetition of some material across grade levels, and the developmental appropriateness of some of the areas of focus in specific grade levels (Alberta Teachers' Association, 2016). Despite the fact that the curriculum explicitly

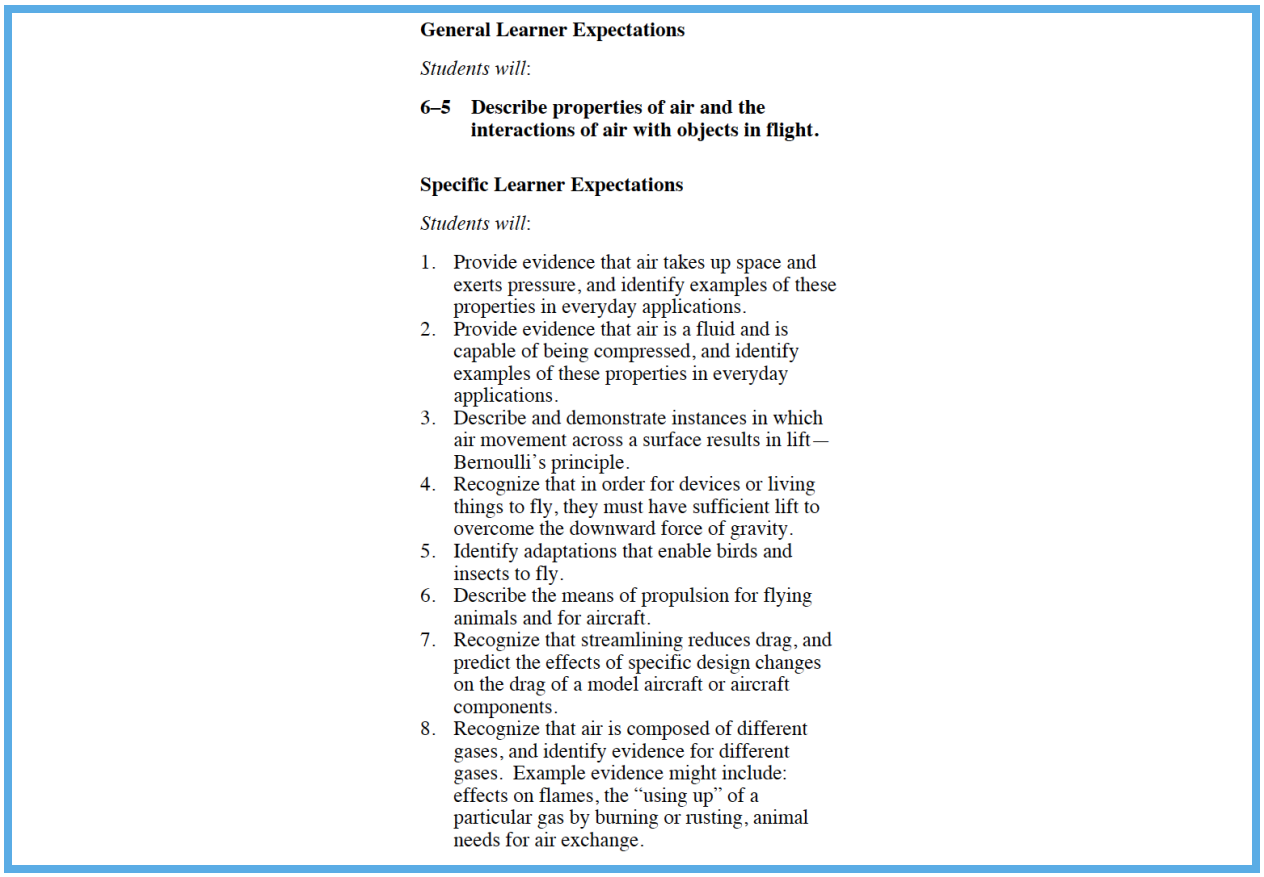
encourages teachers to address current issues and plan inquiry units around relevant, local issues, instruction in social studies is somewhat consistent around the province regardless of geographic location or school type. This is largely the result of the amount of prescribed content and teachers' use of the program's textbooks and teacher guides created by publishers such as Pearson and Nelson in consultation with Alberta Education. Though the textbooks were not designed as the sole learning resource for the program, and do not address the full range of knowledge outcomes in the program, teachers tend to use them to frame their units and then enhance their instruction with more current sources of information. Alberta Education also provides an online guide to implementation through their Learn Alberta portal that provides access to a range of teaching resources including critical inquiry units and lesson plans, videos, websites, and assessment materials. Particularly at the senior high school level, teachers collaborate on the development of common teaching units and writing assessments, based on the requirements of the Grade 12 diploma examination, so this also results in some standardization of instruction.

Science

The science curriculum also requires that students develop essential skills and specific knowledge within a structure of disciplinary inquiry. The program for the elementary grades dates from 1996 and is intended to "encourage and stimulate children's learning by nurturing their sense of wonderment, by developing skill and confidence in investigating their surroundings and by building a foundation of experience and understanding upon which later learning can be based" (Alberta Education, 1996, p. A.1). The specific skill outcomes are linked to science inquiry and problem solving through technology. Each grade is framed around five general learner expectations (topics) related to the life, physical, and earth sciences:

Grade	Life Science	Earth Science	Physical Science
K	• Environment and Community Awareness★		
1	• Needs of Animals and Plants • Senses	• Seasonal Changes	• Creating Colour • Building Things
2	• Small Crawling and Flying Animals	• Hot and Cold Temperature	• Exploring Liquids • Buoyancy and Boats • Magnetism
3	• Animal Life Cycles	• Rocks and Minerals	• Building with a Variety of Materials • Testing Materials and Designs • Hearing and Sound
4	• Plant Growth and Changes	• Waste and Our World	• Wheels and Levers • Building Devices and Vehicles that Move • Light and Shadows
5	• Wetland Ecosystems	• Weather Watch	• Electricity and Magnetism • Mechanisms Using Electricity • Classroom Chemistry
6	• Trees and Forests	• Sky Science	• Air and Aerodynamics • Flight • Evidence and Investigation

The curriculum identifies skill outcomes such as exploring and investigating, and reflecting and interpreting, and attitude outcomes such as curiosity, inventiveness, and persistence which are met throughout the five topics. Each topic meets a general learner expectation and a range of specific knowledge outcomes. Below is an example for the Grade 6 unit on air and aerodynamics:



General Learner Expectations

Students will:

6–5 Describe properties of air and the interactions of air with objects in flight.

Specific Learner Expectations

Students will:

1. Provide evidence that air takes up space and exerts pressure, and identify examples of these properties in everyday applications.
2. Provide evidence that air is a fluid and is capable of being compressed, and identify examples of these properties in everyday applications.
3. Describe and demonstrate instances in which air movement across a surface results in lift—Bernoulli's principle.
4. Recognize that in order for devices or living things to fly, they must have sufficient lift to overcome the downward force of gravity.
5. Identify adaptations that enable birds and insects to fly.
6. Describe the means of propulsion for flying animals and for aircraft.
7. Recognize that streamlining reduces drag, and predict the effects of specific design changes on the drag of a model aircraft or aircraft components.
8. Recognize that air is composed of different gases, and identify evidence for different gases. Example evidence might include: effects on flames, the "using up" of a particular gas by burning or rusting, animal needs for air exchange.

The secondary school program of studies is informed by the pan-*Canadian Common Framework of Science Learning Outcomes* (CMEC, 1997) created in order to develop scientific literacy among Canadian students. The overarching goals of the program are taken from that document:

> Science education will:
>
> - Encourage students at all grade levels to develop a critical sense of wonder and curiosity about scientific and technological endeavors
> - Enable students to use science and technology to acquire new knowledge and solve problems, so that they may improve the quality of their own lives and the lives of others.
> - Prepare students to critically address science related societal, economic, ethical, and environmental issues.
> - Provide students with a foundation in science that creates opportunities for them to pursue progressively higher levels of study, prepares them for science-related occupations, and engages them in science-related hobbies appropriate to their interests and abilities.
> - Enable students, of varying aptitudes and interests, to develop a knowledge of the wide spectrum of careers related to science, technology, and the environment (Alberta Education, 2003/2009/2014, pp. 1-2).

Like the program in the elementary grades, in junior high school, each grade is organized around

five units of study from the life, earth, and physical sciences. The units are shown below:

7	• Interactions and Ecosystems • Plants for Food and Fibre	• Planet Earth	• Heat and Temperature • Structures and Forces
8	• Cells and Systems	• Freshwater and Saltwater Systems	• Mix and Flow of Matter • Light and Optical Systems • Mechanical Systems
9	• Biological Diversity	• Space Exploration • Environmental Chemistry	• Matter and Chemical Change • Electrical Principles and Technologies

The junior high school program, however, is even more specific in suggesting how teachers might approach the unit, framing unit focusing questions, and identifying the key concepts students must understand. An example from the Grade 7 unit on earth science is shown below:

Unit E: Planet Earth (Nature of Science Emphasis)

Overview: The scientific study of Earth is based on direct observation of landforms and materials that make up Earth's surface and on the sample evidence we have of Earth's interior. By studying this evidence, we discover patterns in the nature and distribution of Earth's materials, and in the kinds of changes that take place. This knowledge can be used in developing models for geologic structures and processes—models that help both scientists and students enlarge their understanding of their observations, and guide further investigation and research.

Focusing Questions: What do we know about Earth—about its surface and what lies below? What evidence do we have, and how do we use this evidence in developing an understanding of Earth and its changes?

Key Concepts

The following concepts are developed in this unit and may also be addressed in other units at other grade levels. The intended level and scope of treatment is defined by the outcomes below.

- strata
- rocks and minerals
- rock cycle: formation of igneous rock, metamorphism and sedimentary processes
- mountain formation: folding and faulting
- crustal movement/plate tectonics
- geological time scale
- fossil formation
- weathering and erosion
- sudden and gradual/incremental change
- development of models based on observation and evidence

Detailed knowledge, skill, and attitude learner outcomes are also listed.

At the senior high school level, students can complete a series of general science courses in Grades 10, 11, and 12, or opt to complete focused courses in biology, chemistry and/or physics in Grades 11 and 12 after completing the General Science 10 course. (The more specialized courses are required for entry into university science degree programs.) The charts below provide an overview of the content of these programs:

Science 10	• Cycling of Matter in Living Systems	• Energy Flow in Global Systems	• Energy Flow in Technological Systems	• Energy and Matter in Chemical Change
Science 20	• Changes in Living Systems	• The Changing Earth	• Changes in Motion	• Chemical Changes
Science 30	• Living Systems Respond to Their Environment	• Energy and the Environment	• Electromagnetic Energy	• Chemistry and the Environment
Biology, Chemistry, Physics 20	• Energy and Matter Exchange in the Biosphere • Ecosystems and Population Change • Photosynthesis and Cellular Respiration • Human Systems		• Kinematics • Dynamics • Circular Motion, Work and Energy • Oscillatory Motion and Mechanical Waves	• The Diversity of Matter and Chemical Bonding • Forms of Matter: Gases • Matter as Solutions, Acids and Bases • Quantitative Relationships in Chemical Changes
Biology, Chemistry, Physics 30	• Nervous and Endocrine Systems • Reproduction and Development • Cell Division, Genetics and Molecular Biology • Population and Community Dynamics		• Momentum and Impulse • Forces and Fields • Electromagnetic Radiation • Atomic Physics	• Thermochemical Changes • Electrochemical Changes • Chemical Changes of Organic Compounds • Chemical Equilibrium Focusing on Acid–Base Systems

The programs of study for these courses again provide a detailed overview for each unit, focusing questions, and a list of key concepts. Detailed knowledge, skill, and attitude outcomes are listed. The science curriculum also identifies links to mathematics outcomes related to the content in order to support making interdisciplinary connections and building upon students' understandings.

As with social studies instruction, approaches to science teaching are relatively similar across the province because the curriculum prescribes detailed content students must master. For example, the Biology 20 (Grade 11) and Biology 30 (Grade 12) curriculum document is 81 pages long. The Grade 12 diploma examinations (required in every Grade 12 science course) tend to narrow instruction to those outcomes assessed in the examinations. At all grade levels there are teaching resources specifically developed for the program. Edmonton Public School Board developed teaching units for the elementary science topics that are widely used. Because the curriculum for the secondary grades is based on the pan-Canadian framework and therefore relatively consistent across Canada, Addison-Wesley (Science in Action) and McGraw-Hill Ryerson (Science Focus) have developed textbook series for use in schools. Some have been specifically adapted for the Alberta curriculum. The Learn Alberta portal also provides links to curriculum-specific teaching resources such as informational websites, videos, and simulations. *Again, a content-rich program of studies accompanied by authorized resources specifically developed for the program results in science curriculum that is implemented in relatively similar ways across the diverse range of Alberta school contexts.*

Mathematics

The kindergarten to Grade 12 mathematics program of studies was informed by a curricular framework developed by the WCP in 1995 and updated in all participating western provinces and northern territories in 2006. In 2016, Alberta Education made its own limited revisions to the program. The curriculum has both practical and theoretical foundations. Students are expected to graduate with a strong understanding of key concepts while being able to apply them in concrete situations. The K-9 mathematics curriculum specifies that all students should be able to:

- Use mathematics confidently to solve problems.
- Communicate and reason mathematically.
- Appreciate and value mathematics.
- Make connections between mathematics and its applications.
- Commit themselves to lifelong learning.
- Become mathematically literate adults, using mathematics to contribute to society.

(Alberta Education, 2007a/2016, p. 5)

Notably, the mathematics curricula are not restricted to skills development. In any curriculum, concepts properly understood should find expression in the ongoing development of key, related attitudes. For example, in mathematics, students are expected to:

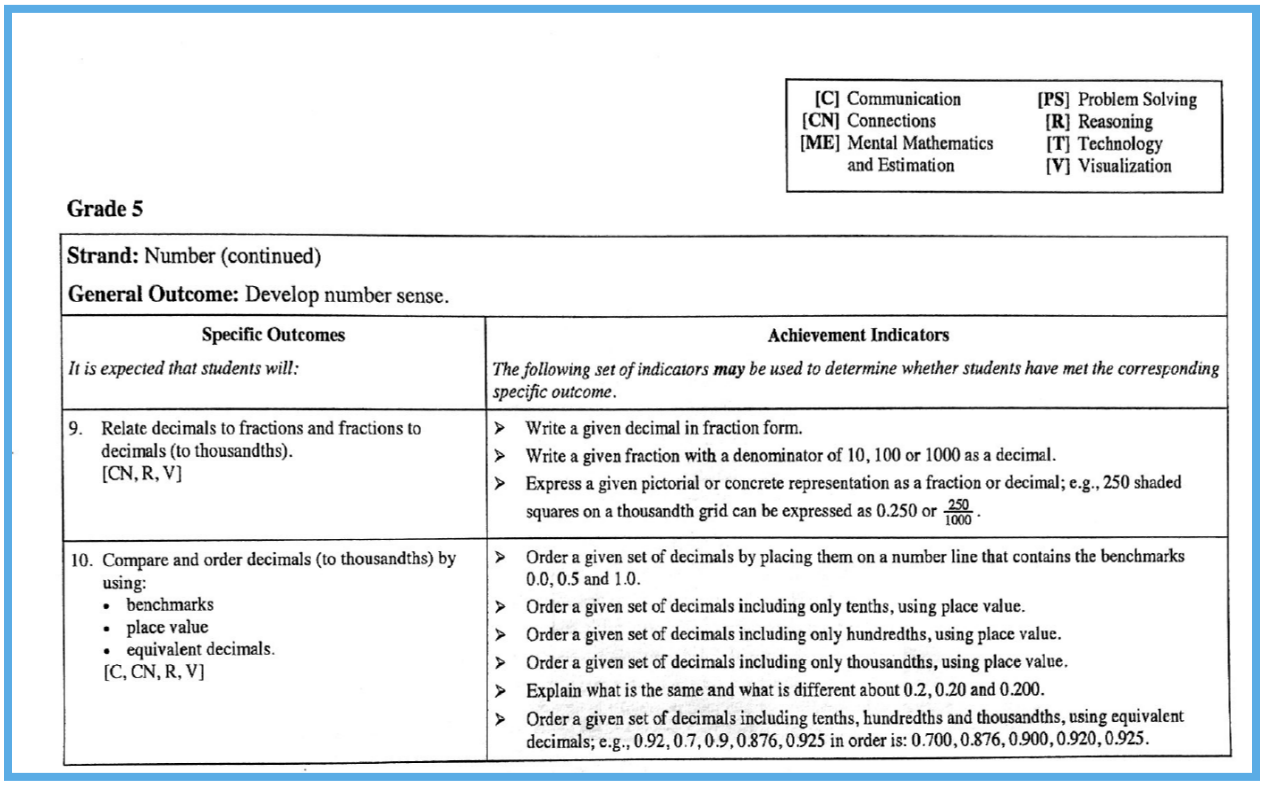
- Gain an understanding and appreciation of the contributions of mathematics as a science, philosophy and art.
- Exhibit a positive attitude toward mathematics.
- Engage and persevere in mathematical tasks and projects.
- Contribute to mathematical discussions.
- Take risks in performing mathematical tasks.
- Exhibit curiosity (Alberta Education, 2007a/2016, p. 7).

Attitudes that demonstrate an appreciation of mathematical reasoning, a respect for the utility of mathematical concepts, an acknowledgment of the discipline's relationship to other subjects such as art and science are all given emphasis in the curriculum.

The instructional focus reflects this approach to mathematics. The program of studies is arranged into four interrelated strands: number; patterns and relations; shape and space; and statistics and probability. The strands, however, are not meant to be taught in isolation from one another, but rather integrated so as to render mathematics more meaningful for students and enable them to connect concepts among the strands. Specifically, teachers are directed to plan for this integration within and beyond these strands. For example, the curriculum expects teachers to:

- Integrate mathematical processes.
- Plan for a balanced approach to understanding, recalling and applying mathematical concepts.
- Nurture problem solving and reasoning by making connections.
- Balance activities among mental mathematics and estimation, paper and pencil exercises, and the use of technology, including calculators and computers.
- Introduce concepts by using manipulatives.
- Respect a diversity of learning styles and cultural backgrounds in the classroom (Alberta Education, 2007a/2016, p. 10).

To assist teachers, Alberta Education publishes a document that provides achievement indicators for general and the related specific outcomes, like this one for the Gr. 5 outcome, "Develop number sense:"



[C] Communication [PS] Problem Solving
[CN] Connections [R] Reasoning
[ME] Mental Mathematics and Estimation [T] Technology
[V] Visualization

Grade 5

Strand: Number (continued)

General Outcome: Develop number sense.

Specific Outcomes *It is expected that students will:*	Achievement Indicators *The following set of indicators **may** be used to determine whether students have met the corresponding specific outcome.*
9. Relate decimals to fractions and fractions to decimals (to thousandths). [CN, R, V]	➢ Write a given decimal in fraction form. ➢ Write a given fraction with a denominator of 10, 100 or 1000 as a decimal. ➢ Express a given pictorial or concrete representation as a fraction or decimal; e.g., 250 shaded squares on a thousandth grid can be expressed as 0.250 or $\frac{250}{1000}$.
10. Compare and order decimals (to thousandths) by using: • benchmarks • place value • equivalent decimals. [C, CN, R, V]	➢ Order a given set of decimals by placing them on a number line that contains the benchmarks 0.0, 0.5 and 1.0. ➢ Order a given set of decimals including only tenths, using place value. ➢ Order a given set of decimals including only hundredths, using place value. ➢ Order a given set of decimals including only thousandths, using place value. ➢ Explain what is the same and what is different about 0.2, 0.20 and 0.200. ➢ Order a given set of decimals including tenths, hundredths and thousandths, using equivalent decimals; e.g., 0.92, 0.7, 0.9, 0.876, 0.925 in order is: 0.700, 0.876, 0.900, 0.920, 0.925.

(Alberta Education, 2016, p.60)

The senior high school mathematics curriculum is also based on a framework developed by the seven jurisdictions in the WCNP in 2008. Alberta Education, however, streamed its courses for Grades 10 to 12, which has resulted in the redistribution of outcomes. For instance, while there is a common course for Grade 10 students (Math 10C), students are streamed into difference courses in Grades 11 and 12 depending on their level of achievement and postsecondary aspirations. The senior high school courses are organized around specific topics: algebra; geometry; logical reasoning; measurement; number; permutations, combinations and binomial theorem; probability; relations and functions; statistics; and, trigonometry. *Students are expected to master seven mathematical processes throughout the courses: communication; connections; mental mathematics and estimation; problem solving; reasoning; technology; and, visualization.* Concepts that define the nature of mathematics are also addressed within every topic: change; constancy; number sense; patterns; relationships; spatial sense; and, uncertainty (Alberta Education, 2008). A separate, senior course focusing on pre-calculus and limits, derivatives and integrals is provided for students who intend to enter university mathematics and/or science programs.

The program of studies in mathematics is supported with resources developed to match the WCNP framework by publishers such as Nelson (Math Focus), Pearson (Math Makes Sense), and McGraw-Hill Ryerson (MathLinks). Alberta Education also provides documents with detailed, illustrative examples of achievement indicators for the outcomes of the program and a wide range of planning and instructional resources is provided through the Learn Alberta online portal.

Consistent with other subject areas, the detailed programs of study, the availability of authorized resources, and the requirements of the provincial standardized tests account for the uniformity in the ways the program is implemented in diverse school settings.

Assessments

What do the assessments look like? Are they multiple-choice, constructed response, essays, etc.? Do all students take the same ones, and if so, how frequently? Are they scored at the local or provincial level?

Alberta recognizes public education as a significant government expenditure and an important investment in its future, and as such, acknowledges that accountability measures need to be in place in order to assure taxpayers that they are getting value for this investment. As indicated earlier, these accountability measures – known as the Accountability Pillar - include evaluation of students, teachers, programs, schools, and school systems. This section details only the large-scale student assessment programs that are part of this larger accountability framework.[3]

The Introduction of Provincial Testing Programs

In 1981, Alberta Education introduced the Provincial Achievement Testing (PAT) program in selected subject areas in Grades 3, 6 and 9. When the program was first introduced, only one subject area was tested per year, the tests included a written or performance task component as well as a multiple-choice component, and students' test scores were not to be included in their assigned course grade (McEwan, 1995). In 1994, the ministry expanded the program to administer tests in all four subject areas every year in Grades 6 and 9. Schools were encouraged, though not required, to include students' test scores in their course grades. Over the years, the format of the examinations has changed - for example, the written component was eliminated in the social studies test, because of the costs associated with centralized marking.

With the exception of the decade between 1973 and 1983, Alberta has always administered school-leaving examinations. The school subjects examined, the nature and format of the examinations, and the contribution of the examination grade to students' final course grades have changed over the years. The current Diploma Examination Program was established in 1984 with compulsory examinations in core academic courses in the "university preparation" stream. Students' final course marks were a 50:50 blend of a school-awarded grade, and their grade on the diploma examination. In 1994, the program was expanded to introduce diploma examinations in lower-stream Grade 12 English, mathematics and social studies courses (ie. Courses intended for students not planning to attend university). In 2015-2016, Alberta Education dropped the weighting of the diploma examinations from 50% to 30% of students' final course grades.

Currently, the Learner Assessment Branch of Alberta Education (provincial ministry) develops and administers three standardized testing programs.

3 In addition to public accountability, assessments in Alberta serve two purposes for large-scale student assessments: tests for diagnostic purposes provide important information about student achievement so that teachers can appropriately support and guide students' learning; tests are used for gatekeeping if they are required for admission, grade promotion, or graduation Nagy (2000).

- The Student Learning Assessments, introduced in 2014-2015, are an optional assessment administered to Grade 3 students;
- The Provincial Achievement Testing program provides information about how well students in Grades 6 and 9 are achieving standards in core subject areas; and,
- The Diploma Examination program is administered in Grade 12 core academic subjects required for a high school diploma and/or admission to postsecondary programs.

Student Learning Assessments (SLA)

Until 2014, Alberta's Provincial Achievement Testing program included mandatory tests for Grade 3 students in Language Arts and mathematics. These were administered at the end of the school year and were intended to provide information about how well students had met specific curricular outcomes in those subject areas. The shift to diagnostic testing at this grade level was part of a larger Canadian trend reflecting "a desire to clarify the role of large-scale assessment and to create new developmentally and pedagogically appropriate ways of assessing students in a large-scale format" (Grayson Kocay, 2019, para. 9). *They represent an important philosophical shift for Alberta Education in that provincially-developed, large-scale testing is, for the first time, used for formative rather than summative assessment.* Moreover, while students' test results are reported to parents and schools, they are not included in schools' or school systems' accountability measures.

In 2014-2015, Alberta Education introduced the Student Learning Assessment program. According to Alberta Education, the purposes of the SLA program are to: improve student learning (primary purpose); enhance instruction for students (Alberta Education, 2018c, p. 14). They are optional but available for teachers to use at any point throughout the Grade 3 year (Aug. 20, 2018 to June 28, 2019 for this school year). Teachers are encouraged to administer them early in the year. They are based on literacy and numeracy outcomes of the Grade 2 program of studies (so potentially attend to learning outcomes from health, language arts, mathematics, science, and social studies).

The SLAs are unique not only in that they are intended to be used for diagnostic purposes early in the year, but they are also the first of the testing programs to be administered through a digital platform, a shift that all provincial testing programs are working toward. The SLAs consist of four components: there are literacy and numeracy tests completed through the digital platform; and, pencil and paper performance tasks in literacy and numeracy. The literacy and numeracy digital assessments provide the opportunity to embed video, audio, and interactive components into the questions, ie. multimodal capabilities of the platform are used. They are scored by the program. Performance tasks are marked by teachers. School districts decide if teachers mark their own students' work or if teams of teachers are brought together to assess the tasks.

Provincial Achievement Testing (PAT) Program

PATs are administered to students in Grades 6 and 9, and according to Alberta Education, are intended to:

- Determine if students are learning what they are expected to learn.
- Report to Albertans how well students have achieved provincial standards at given points in their schooling.
- Assist schools, authorities, and the province in monitoring and improving student learning Alberta Education, 2019).

Thus, the PAT program can serve a diagnostic purpose, but is primarily intended for accountability purposes. Achievement tests are given in core academic subjects: English or French language arts, mathematics, science, and social studies. They are criterion-referenced and based on learning outcomes expected at Grade 6 and 9 levels respectively. They are administered in May and June, and in January for students in semestered programs.

Currently, the language arts examinations in Grades 6 and 9 include a written component that consists of one narrative and one functional piece of writing, both in response to visual and/or textual prompts. The second component consists of multiple-choice questions based on reading selections from fiction, nonfiction, drama, poetry, and visual media. The multiple-choice component is machine scored. The written component is marked by teachers who have been selected to serve on centralized marking committees in Edmonton. Teachers may mark their own students' written components using the provincially mandated scoring guides before sending the exams to Edmonton for external grading. Both scores contribute to the students' final examination grade.

The format of the mathematics examinations has recently changed in response to perceived public concerns about students' fluency in mental math (French, 2016b; French, 2018b). The examinations now consist of one component that requires students to provide numerical responses to questions that test foundational skills and mental math within a strict time limit. The second component consists of multiple-choice questions that assess students' ability to recall concepts and principles, and to apply reasoning skills to solve problems. Calculators with restricted functions are allowed for this second component. Both the numerical response and multiple-choice components of the examinations are machine scored.

Like the language arts and mathematics examinations, the science and social studies examinations assess student achievement of selected curricular outcomes. The Grade 6 science exam consists of multiple-choice items only; the Grade 9 exam includes multiple-choice and numerical-response items. Both exams are machine scored. The Grade 6 and Grade 9 social studies examinations consist of multiple-choice questions - many of which require interpretation of source material provided, in addition to assessing understanding of the courses' key concepts.

In order for the PAT program to meet its goals, results are reported in a variety of ways. Individual students' scores on the examinations are reported to students, parents, and schools. Reports that summarize student achievement test scores by school and by school board are provided by Alberta Education and are publicly available. They are usually readily accessible through school and school board websites. Alberta Education also reports results for the province as a whole. PAT results are an important component of the multidimensional Accountability Pillar. Alberta Education expects that schools, and therefore school districts, will use the results to set targets for performance in their three-year plans. They contend that, "Evaluating results in the context of these targets can help school boards identify which areas students need more help in to improve learning" (Alberta Education, 2019a, para 7).

Diploma Examination Program

Alberta Education defines three purposes for the program:

- To certify the level of individual student achievement in selected Grade 12 courses.
- To ensure that province-wide standards of achievement are maintained.
- To report individual and group results.

The examinations clearly serve an accountability and gatekeeping function. Examinations are given in the following subjects:

- English language arts 30-1 and 30-2
- French language arts 30-1 (Immersion)
- Français 30 (French as first language)
- Social studies 30-1 and 30-2
- Mathematics 30-1 and 30-2
- Sciences: Biology 30, Chemistry 30, Physics 30, (General) Science 30

Because high schools in Alberta follow a range of schedules (full-year, semestered, quarter system), examinations are administered in November, January, April, June, and August. The exams are supervised or administered by school personnel, but not by those who teach the subject being examined.

Language arts (English or French) and social studies exams have a written component (Part A), and a machine-scored multiple-choice component (Part B). Students can use computers (word processing applications) for the written component. In Language Arts, the written component consists of a personal response essay and a critical response essay to visual and/or textual prompts. In the 30-2 course, the written component assesses more functional writing. For example, it typically includes a persuasive letter. In both the 30-1 and 30-2 examinations, Part B is a reading test intended to assess students' ability to analyze a range of literary texts representing a range of genres. In social studies, the written component consists of source analyses and the completion of a position paper. Part B consists of multiple-choice questions that require students to apply their understanding of key course concepts in the analysis of a range of source material such as cartoons, diagrams, newspaper headlines, excerpts from historical documents, timelines etc. Multiple-choice components of the examinations are machine scored. Written components are graded by teachers who have been selected to serve on centralized grading committees in Edmonton.

The mathematics examinations consists of machine-scored, multiple-choice and numerical-response questions and a few written response questions. The exam is divided approximately evenly among procedural, conceptual, and problem-solving questions. All the science examinations consist of numerical response and written response questions that are machine scored. Approved calculators, rulers, and protractors may be used in math and all science exams.

Like the Provincial Achievement Testing program, individual students' scores on the diploma examinations are reported to students, parents, and schools. Reports that summarize diploma exam scores by school and by school board are provided by Alberta Education, and are publicly available. They are accessible through school and school board websites. Alberta Education also reports examination results for the province as a whole, and they are an important component of school and school board accountability frameworks. Alberta Education expects that schools, and therefore school districts, will use the results to set targets for performance in their three-year plans, and plan for continuous improvement in both diploma examination scores, and the number of students taking diploma examination courses.

Key Attributes of Assessment Programs

There are two important characteristics of Alberta Education's assessment programs that warrant

further explanation. First, while parents can request that their children be exempt from the SLAs in Grade 3, and the PATs in Grades 6 and 9, these exemptions are infrequent. It is Alberta Education's policy that *all Alberta students participate in all assessment programs*. Students in all educational settings including home education, accredited private schools, in specialized alternative programs, and in First Nations reserve schools, participate in the provincial assessment programs. In order to facilitate widespread participation, a range of accommodations are provided for students who require them. While examinations are conducted on specific dates and at specific times, and while all have time limitations, students can receive up to double the amount of official time to complete examinations. Decisions about the nature of accommodations are made at the school level and can include a range of strategies intended to meet the specific learning needs of students: audio version of exam; exam read to student; ambient noise; frequent breaks; exam broken into sections; scribe; large-print; braille; sign language interpreter; text-to-speech technology; colored papers and overlays; writing in isolation. For Alberta Education, the format of the examination or the conditions under which the examination is given should not be a barrier to any student.

The second key attribute of Alberta's assessment programs is the significant *involvement of teachers in developing and implementing the program.* According to a 2008 study, "Teachers are typically involved in item development, administration, and marking" in all Canadian jurisdictions (Klinger, Deluca & Miller, 2008, p. 24). The employees of Alberta Education's Learner Assessment Branch are typically educators with several years of teaching experience in Alberta classrooms and graduate education related to assessment. They work with committees of classroom teachers to develop items for the examinations. Those items are field tested to ensure validity and reliability. Teachers whose classrooms are selected for field testing are asked to comment on the test's readability and length, the clarity and appropriateness of the source material in the test and the test questions, and the perceived difficulty of the questions. Test items are blueprinted to identify appropriate connections to required course outcomes. For examinations with a written component, marking takes place shortly after the examinations have been administered. These components are marked centrally (in Edmonton), by teachers who have been nominated by their school superintendents and meet a specific set of criteria identified by the ministry (related to experience teaching the course). Markers are paid an honorarium as well as travel expenses.

The marking process is a rigorous one and many teachers describe it as an extremely valuable professional learning opportunity. The process begins with a small group of teachers who do standard setting with a representative sample of student papers. They grade them using the rubrics developed by the Assessment Branch and clarify how and why they meet the standard identified. This is followed by group leader training. At the marking sessions, small groups of markers (teachers) work under a group leader. Every student paper is marked twice. If there is a wide discrepancy in the grade (or specific category of the rubric), it goes to a third reader. Several times during a marking session, there is a standard check during which everyone marks the same paper used in standard setting to check that they are maintaining consistency in standard. As a result, the process reflects a high standard of inter-rater reliability.

When the Student Learner Assessment program was implemented in 2014, it was accompanied by a significant professional learning component because the literacy and numeracy performance tasks were marked locally rather than by vetted and trained teachers in Edmonton. A study of the program indicated that while teachers valued the collaborative marking sessions, the professional development "was deemed insufficient for the challenges of administering the SLA program, marking SLA performance tasks, and learning how to interpret and use SLA student performance data" (Slomp et al, 2017, p. 8). Furthermore, the study found that the Grade 3 teachers who participated in the piloting of the SLA program believed "that the time required to administer the SLA program outweighs the value of the information provided by the program" (Slomp et al,

2017, p. 8). The cost – in terms of instructional time as well as financial resources – of Alberta's provincial testing program is an ongoing point of contention for Alberta educators (Aitken et al, 2011; ATA, 2017).

CURRENT DEBATES ABOUT ASSESSMENTS

Alberta Education's student assessment programs have been recognized for their high-quality, curriculum-based examinations (Darling-Hammond et al, 2017). That said, there are four areas of considerable concern identified by researchers and by Alberta Education's own research reports.

Validity

There are always questions surrounding standardized testing and the extent to which they measure the most important goals of learning. These questions are relevant in the Alberta context because the provincial testing program measures only a limited number of curricular outcomes. For the Grade 9 PATs and Grade 12 diploma examinations, there are also concerns about the increasing complexity of the linguistic construction of items which brings the validity of mathematics and science tests into question. For the Grade 3 SLAs and Grade 6 PATs, there is increasing concern that complex key constructs, such as literacy and numeracy, are underrepresented. Moving the testing programs to a digital platform complicates this further because test items will need to be evaluated to ensure they actually measure what they claim to measure, and then will need to be blueprinted by modality and curriculum outcomes, and by construct facet. Concerns about the validity of the examinations are exacerbated by the fact that Alberta Education does not share information publicly about the specific validation model it employs.

Negative Impacts on Instructional Practices and Curriculum

A study of large-scale assessment frameworks across Canada found that, "None of the educational jurisdictions in Canada attach any negative consequences for teachers, schools, or districts based on assessment results" (Klinger, Deluca & Miller, 2008, p. 27). In a formal sense this is true since there are no ministry-initiated punitive measures taken against schools or districts whose test results are identified as a point of concern. In an informal sense, there is ample evidence that the provincial testing programs have significant negative impacts on teaching practices and students' opportunities for meeting all mandated outcomes of the provincial curriculum. Qualitative studies involving Alberta teachers of English language arts, mathematics, social studies and science have found that they modeled their classroom assessment practices after those included in diploma exams; focused instruction on outcomes tested by the exam; and, included test preparation as a significant component of their classroom practice (Agrey, 2004; Marynowski, 2014; Pelech, 2015; Slomp, 2008). Given the rich learning opportunities provided by the provincial curriculum in all subject areas, it is particularly troubling that teachers narrow the focus of their classroom instruction on the outcomes tested by the standardized examinations. When Alberta Education dropped the weighting of the diploma examinations to 30% from 50% of the student's final grade, they explained that this "was to ensure that students' final grades better reflected their performance on the full range of learning outcomes in Alberta's Program of Studies" (Slomp & Marynowski, 2019, p. 5). Alberta Education's own examination blueprints identify the narrow range of outcomes the examinations measure. And yet, Slomp and Marynowski's mixed-methods study of 343 teachers found that they mapped or blueprinted their courses to the same outcomes

tested by the diploma exam (ie. Not teaching the outcomes not tested), regardless of the weighting of the exam.

Moreover, there is evidence to suggest that schools and school districts exert considerable pressure on teachers to ensure that a student's school-assigned grade is relatively close to their diploma examination grade, despite the fact that they should measure different outcomes and reflect different kinds of assessment: "Many school districts have articulated that the expectation that school marks and exam marks should be no more than 5% discrepant from one another. This informal policy is difficult to justify in an environment where school grades reflect attention to mastery learning while diploma exam scores merely reflect performance on a single test, written under timed conditions" (Marynowski, Mombourquette & Slomp, 2019, p. 133). It also runs contrary to the principles of fair and balanced assessment which are intended to guide the practices of educators in the province (Alberta Education, 2018b). These practices can include giving students opportunities to rewrite teacher-made tests, resubmit assignments, or demonstrate their learning with differentiated assessments, all of which can lead to teacher-assigned grades which are higher than those students would earn on diploma examinations. Teachers practicing fair and balanced assessment but whose grades are deemed too high, are often reassigned to courses without standardized tests.

Mission Creep

A research study commissioned by Alberta Education found that, "Participants consistently iterated concern about the perceived expansion of the purposes of standardized testing—accountability, curriculum revision, resource allocation, and targeting for professional development—a host of phenomena they described as 'mission creep'" (Aitken et al, 2011, p. 200). While Alberta Education is clear about the purposes of its various assessment programs, at the district and school levels, examination results are used to inform decisions about staffing, student placement, and the allocation of financial and other resources. Educators contend that this misuse of testing data is the result of the way in which examination results are reported to the public, or more specifically, how the results are taken up by organizations, such as the research organization the Fraser Institute, which uses the information in order to publish their own "report cards" that rank schools according to their performance. Within a provincial context that offers ample school choice, these rankings have become an important source of information for parents making decisions about their children's schooling. In neighboring British Columbia, media outlets have actually declined to publish the Fraser Institute rankings because of their problematic methodology and the fear that they were misleading the public about the quality of the province's schools (Raptis, 2012). In Alberta, the rankings receive significant media coverage, and schools use positive results in their promotional and recruitment materials, a practice particularly opposed by the provincial teachers' association (Alberta Teachers' Association, 2004).

Fairness and Equity

While international researchers praise the Alberta system for better than OECD average equity in PISA tests, particularly in mathematics (Campbell et al, 2017), Alberta Education's research reports acknowledge significant achievement gaps between mainstream student populations and First Nations students, and identify continuing problems with the tests' use of terms and concepts that are culturally inappropriate or foreign to many students (Aitken et al, 2011). The study of the SLA program identified issues of fairness with the tests that were significant enough that it

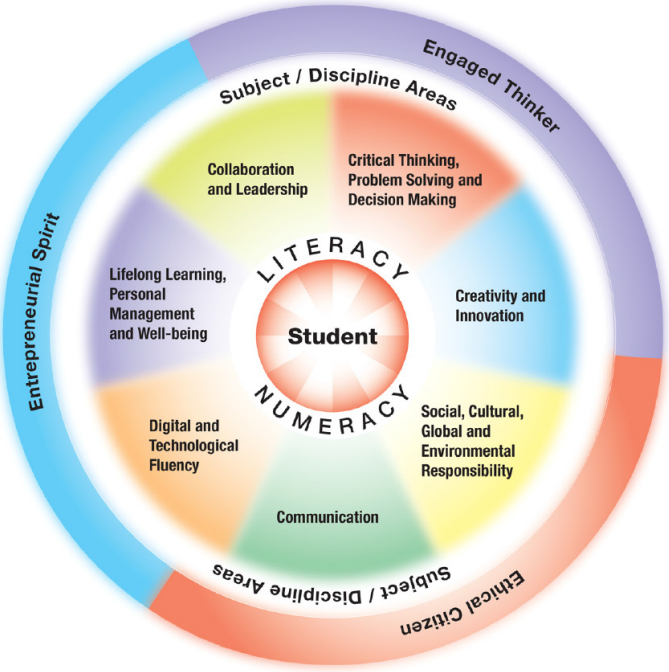
recommended the ministry "examine performance by subgroup in both literacy and numeracy, to understand (a) why models are substantially weaker for some performance groups, (b) to identify ways to strengthen the assessment models through item refinement, and (c) to draw lessons from high performing groups that could be applied to enhancing the performance of other subgroups" (Slomp et al, 2017, p. 9).

Concerns about fairness are exacerbated by the fact that Alberta Education collects but does not publicly report examination data by subgroup (gender, ELL, FNMI). This means that while they acknowledge achievement gaps, there is little public understanding of what might actually be impacting performance (like cultural knowledge or experience), and little opportunity to ensure all stakeholders are actually providing equity of opportunity for low-achieving students to learn. That said, school boards across the province have developed multi-year strategic plans to support FNMI student success which include stronger partnerships with local indigenous communities, and providing targeted services like literacy interventions. Alberta Education has introduced an Innovations in First Nations Education grant program to help schools to develop education programs to support First Nations students, and established the First Nation, Métis, and Inuit Education Directorate to provide leadership and strategic direction to close the achievement gap between First Nations, Métis, and Inuit students, and all Alberta students.

THE FUTURE OF CURRICULUM AND ASSESSMENTS

Over the past decade, Alberta Education has been engaged in a process of revisioning and revising the entire kindergarten to Grade 12 school curriculum. In 2008, the Progressive Conservative government launched an initiative to establish a vision for schooling in Alberta. A 22-member steering committee was appointed to engage in public consultations around the province in order to "develop a clear understanding of what it will mean to be a successfully educated Albertan" in the year 2030, and describe "the overall direction, principles, and long-term goals for education in Alberta" (Alberta Education, 2010, p. 5). The committee report released in 2010 summarized their vision by describing the graduates of Alberta schools as engaged thinkers and ethical citizens with an entrepreneurial spirit. These "3Es" became the official overarching outcomes of the Alberta education system through a Ministerial Order signed in 2013, and provided a direction for the development of a framework for student learning, and a process for curriculum revision.

Like 21st century curriculum frameworks in jurisdictions worldwide, Alberta's *Framework for Student Learning* (2011) represented a shift toward learner-centred and competency-based curriculum intended to better prepare students for work in a competitive, global economy. It identified literacy and numeracy as foundational to all student learning. While specific subject area programs would remain, Alberta Education clarified that they would provide a context for the development of seven competencies and provide opportunities for interdisciplinary, inquiry-based learning. The relationship between the goals, foundations, and competencies in the framework are reflected in this visual:



(Alberta Education, 2011, p. 2)

Curriculum redesign prototypes were in development when Albertans elected the New Democratic Party (NDP) to government in 2015.

The new government briefly paused program development to revisit and refine the vision for curriculum reform. Only minor revisions were made to the Ministerial Order that was informing the curriculum redevelopment already underway, but the province moved away from the specific frameworks imposed by the WCNP. The new *Guiding Framework for the Design and Development of Kindergarten to Grade 12 Curriculum* defined the vision for the education system as preparing students as "lifelong learners inspired to pursue their aspirations and interests; achieve fulfilment and success; and contribute to communities and the world" (Alberta Education, 2016/7, p. 3). It identified guiding principles for the simultaneous redesign of programs of studies in six subject areas: arts, language arts, math, social studies, science, and wellness. Redeveloping all the subject areas provided the opportunity to identify cross-disciplinary themes, and ensure the development of student competencies now defined as: critical thinking; problem solving; managing information; creativity and innovation; communication; collaboration; cultural and global citizenship; personal growth, and well-being (Alberta Education, 2016/17, p. 28).

The Minister of Education committed $64 million toward this ambitious curriculum redevelopment (French, 2016a). In addition to 81 Ministry staff members, curriculum writing committees made up of teachers seconded to the Ministry, consultant teachers nominated by their school boards, and university professors, have completed the Kindergarten to Grade 4 curriculum which is scheduled for implementation in Fall 2019. In total, 409 educators have worked on the new curriculum (French, 2018a). The Grade 5 to 9 curriculum is to be implemented in fall 2020, and the high school curriculum is meant to be developed in phases between 2020 to 2022.

For the first time, curriculum has been developed in English and French simultaneously, drafts have been posted online and available for public review and feedback, and when it is complete, the

curriculum, supporting resources, and assessments will all be available on a digital platform only. Alberta Education has described the new program as "concept-based." Subject-area programs of study mandate fewer but broader learner outcomes, in order to ensure that students possess deep understandings of key ideas, connect them across disciplines, and apply them in real-life contexts. All subject area programs are intended to reflect diverse perspectives, with particular attention to First Nations, Métis, and Inuit perspectives and experiences.

On April 16, 2019, Albertans elected a new United Conservative Party government under the leadership of Jason Kenney. While campaigning, he was extremely critical of the current curriculum revision, characterizing it as the imposition of the NDP's "political agenda" on schools and suggesting that if elected, his government would "put that curriculum through the shredder and go right back to the drawing board" (Zabjek, 2019, para. 1). His party's election platform, however, said only that they would "reset the curriculum rewrite" (United Conservative Party, 2019). The new government has not yet made any formal announcement about the future of the curriculum revision.

The platform of the newly-elected United Conservative government also indicated that they would return the weighting of the Grade 12 diploma examinations to 50% of students' final grades, reintroduce the PAT program in Grade 3, and introduce standardized tests in literacy and numeracy in Grades 1 and 2. These changes are strongly opposed by the provincial teachers' association (French, 2019), and given the history of teacher involvement in the creation and implementation of provincial testing programs, would be challenging to carry out without their cooperation. Policy to implement these changes has not yet been introduced.

CONCLUSION

What lessons might other countries take from Alberta's experience?

It should be clear that key characteristics of Alberta's K-12 education system are contingent upon context. They have developed over time and are the result of unique historical, political, social, and economic circumstances. It would be challenging for other jurisdictions to attempt to replicate the legal structures and policy frameworks that define Alberta's pluralist provincial school system. As Dennis Shirley maintains, well-intentioned but ill-considered "policy borrowing" leads to decontextualized and inappropriate reforms (2016). This said, are there lessons on which other school systems might draw – and of which Albertans need to be reminded – in the search for continual improvement?

Principled Pluralism

Alberta's provincial school system provides strong ministry oversight over diverse school types. The fact that the province was governed for 44 years by conservative governments meant that there were sustained efforts first, to encourage the development of schools and specialized programs that would reflect the religious and linguistic identities of Albertan families, and since the 1990s, to provide parents with school choices consistent with their family interests and aspirations. The principle of parental choice is now a core element of the province's school system, although there

are ongoing debates about the appropriateness of using public funds to support programs with selective admission policies and niche target populations, and concerns about the fragmentation of public school systems that historically have been important in building communities with a commitment to the common good. Moreover, not all school choices are available to all Albertans: meaningful choice is limited to families who live in the province's largest cities, Calgary and Edmonton, and can afford the often considerable fees associated with specialized program options. Furthermore, not all choices are equally funded or equally protected under the law. While Roman Catholic separate schools receive full public funding and have constitutional protection, other religious communities must either establish private schools and receive less funding, or apply to become alternative programs within public school boards that impose their own hiring and admission policies, and reserve the right to eliminate the programs if they wish.[4] As Hiemstra stresses, "fair and equitable treatment of all bona fide forms of educational pluralism is not applied system-wide on a consistent, principled basis" (2017, p. 110). *The province can still do more to ensure that school options are provided with attention to equity of opportunity.*

A Collaborative Approach

The key elements of Alberta's high-quality education system – rigorous curriculum, the standardized provincial testing program that measures student achievement of curricular outcomes, and a system-wide accountability framework – were all developed collaboratively. For the most part, Alberta Education officials have worked with classroom teachers (through the Alberta Teachers' Association and local school boards) and with school board leaders to write programs, develop the provincial tests, and craft the performance measures of the Accountability Pillar. It is always challenging to create a school curriculum that offers the right balance of direction and flexibility for teachers with a system-wide set of accountability measures that attends to general as well as local goals of schooling. Alberta has navigated this challenge by adopting a collaborative approach that respects the expertise, experiences, and responsibilities of all stakeholders while providing the opportunity to create responsive curriculum and assessment frameworks. Theoretically, much of the responsibility for and authority over the system is centralized with Alberta Education; in practice, they could not exercise their responsibilities without the considerable contributions of teachers, school leaders, and school board members from all school authorities.

Teacher Quality

Studies point to the quality of the province's teachers as a significant reason for its successes (Campbell et al, 2017). Detailed professional practice standards inform teacher education programs and are the basis of ongoing professional evaluations throughout a teacher's career (Alberta Education, 2019b). School boards provide time and direction for schools' professional learning communities, but school leaders are expected to work with their staff members to define goals for professional development programs and define indicators of achievement of teacher growth. Many schools engage in well-designed and -implemented research studies to improve their schools and their students' learning outcomes. Because teachers have the opportunity, over the course of their careers, to be involved in the development of programs of study and provincial tests, they are remarkably knowledgeable about their curricula and assessment-literate in terms of both large-scale and classroom, curriculum-based assessments.

4 For example, the elected trustees of Battle River School Division in Camrose voted to end the board's agreement to run Cornerstone Christian Academy School as an alternative program after disputes about specific scriptural passages in the school's vision statement, and about the public communication of issues related to the internal operations of the school and school division (CBC News, 2017).

Specific and unique features of Alberta's education system would be extremely challenging to replicate in other jurisdictions. Nonetheless, three components are worthy of consideration by other systems: Alberta's commitment to a principled pluralism in school provision; the province's collaborative approach to the development of rigorous curriculum with appropriate standardized testing; and, a focus on developing and supporting excellent teachers. There is a creative and perhaps productive, tension in crafting programs and policies that provide strong, general direction and yet are sensitive to the school and community contexts in which those programs and policies are lived out. This is not a tension that Alberta educators have fully resolved, but it drives continuing attempts to improve schooling for the benefit of all Alberta students.

ABOUT

Amy von Heyking is an Associate Professor, Faculty of Education and member of the Institute of Child and Youth Studies at the University of Lethbridge in Alberta, Canada. Her areas of research include the history of Canadian curriculum, contemporary curriculum policy, and curriculum implementation in diverse school contexts. She is the author of *Creating Citizens: History and Identity in Alberta's Schools* (University of Calgary Press, 2006), and co-editor of *Becoming a History Teacher: Sustaining Practices in Historical Thinking and Knowing* (University of Toronto Press, 2014). Her research articles have appeared in *History of Education Quarterly*, *Historical Studies in Education*, and the *Canadian Journal of Education*.

The Johns Hopkins Institute for Education Policy is dedicated to integrating research, policy, and practice to achieve educational excellence for all of America's students. Specifically, we connect research to the policies and practices that will ensure all children have access to intellectually challenging curricula, highly-effective educators, and school models that meet students' diverse needs. By delivering the strongest evidence to the policymakers who set the course and the practitioners who teach and lead, we hope to serve the American children who enter our classrooms every day. Learn more at http://edpolicy.education.jhu.edu

References:

Agrey, L. (2004). The pressure cooker in education: Standardized assessment and high-stakes. Canadian social studies, 38(3). Retrieved from https://canadian-social-studies-journal.educ.ualberta.ca/content/articles-2000-2010#ARagrey_pressure_cooker_education163

Aitken, N., Webber, C.F., Lupart, J., Scott, S., & Runté, R. (2011). Assessment in Alberta: Six areas of concern. The Educational Forum, 75, 192-209.

Alberta, Department of Education, Curriculum Branch. (1974). Curriculum decision-making in Alberta: A janus look. Edmonton: Author.

Alberta Education. (1977). Alberta education and diploma requirements: A discussion paper prepared for the Curriculum Policies Board. Edmonton: Author

Alberta Education. (1984). Review of secondary programs. Report of the Minister's Advisory Committee: Foundation for the future. Edmonton: Author.

Alberta Education. (1985). Secondary education in Alberta: Policy statement. Edmonton: Author.

Alberta Education. (1994). Roles and responsibilities in education: A position paper. Edmonton: Author.

Alberta Education. (1996). Science (elementary) program of studies. Edmonton: Author. Retrieved from https://education.alberta.ca/media/159711/elemsci.pdf

Alberta Education. (1998). Deciding what students should learn: How school programs are developed in Alberta. Edmonton: Author.

Alberta Education (2003, updated 2009, 2014). Science grades 7-8-9 program of studies. Edmonton: Author. Retrieved from https://education.alberta.ca/media/3069389/pos_science_7_9.pdf

Alberta Education. (2005a). English language arts authorized novels and nonfiction list grades 4 to 12. Edmonton: Author.

Alberta Education. (2005b). Social studies, kindergarten to grade 12. Edmonton: Author. Retrieved from https://education.alberta.ca/media/3273004/social-studies-k-6-pos.pdf

Alberta Education. (2007a, updated 2016). Mathematics kindergarten to Grade 9. Edmonton: Author. Retrieved from https://education.alberta.ca/media/3115252/2016_k_to_9_math_pos.pdf

Alberta Education. (2007b). Social studies program of studies, grade 9. Edmonton: Author. Retrieved from https://education.alberta.ca/media/160202/program-of-study-grade-9.pdf

Alberta Education. (2007c). Social studies program of studies, grade 10. Edmonton: Author. Retrieved from https://education.alberta.ca/media/160209/program-of-study-grade-10.pdf

Alberta Education. (2008). Mathematics, grades 10-12. Edmonton: Author. Retrieved from https://education.alberta.ca/media/564028/math10to12.pdf

Alberta Education. (2010). Inspiring education: A dialogue with Albertans. Edmonton: Author.

Alberta Education. (2011). Framework for student learning: Competencies for engaged thinkers, ethical citizens with an entrepreneurial spirit. Edmonton: Author.

Alberta Education. (2016). Alberta k-9 mathematics achievement indicators. Edmonton: Author.

Alberta Education. (2016/17). The guiding framework for the design and development of kindergarten to grade 12 curriculum (programs of study). Edmonton: Author.

Alberta Education. (2018a). Business plan, 2018-21. Edmonton: Author. Retrieved from https://open.alberta.ca/dataset/cea65c12-a239-4bd9-8275-3ab54d84f5b3/resource/83da58a3-4ceb-45f4-a471-aad897f8b9e1/download/education.pdf

Alberta Education. (2018b). ECS to Grade 12: Guide to education, 2018-2019. Edmonton, AB: Author. Retrieved from https://education.alberta.ca/media/3772212/guide-to-education-2018.pdf

Alberta Education. (2018c). General Information Bulletin Alberta Provincial Student Learning Assessment, 2018-2019 school year. Edmonton, AB: Author.

Alberta Education. (2019a). Accountability in Alberta's k to 12 education system. Retrieved from https://www.alberta.ca/accountability-education-system.aspx

Alberta Education. (2019b). Professional practice standards – overview. Retrieved from https://www.alberta.ca/professional-practice-standards-overview.aspx

Alberta Education. (2019c). Provincial Achievement Tests. Retrieved from https://www.alberta.ca/provincial-achievement-tests.aspx?utm_source=redirector

Alberta Education. (2019d). Student population statistics. Retrieved from https://www.alberta.ca/student-population-statistics.aspx

Alberta Education, Alberta Teachers' Association (ATA), Alberta School Trustees' Association (ASTA). (1977). Curriculum decision-making in Alberta II: Determining priorities for the curriculum. Edmonton: Authors.

Alberta Learning. (2000a). English language arts: Program of studies, kindergarten to grade 9. Edmonton: Author. Retrieved from https://education.alberta.ca/media/160360/ela-pos-k-9.pdf

Alberta Learning. (2000b). English language arts (k to 9), illustrative examples. Edmonton: Author

Alberta Learning. (2003). English language arts (senior high). Edmonton: Author. Retrieved from https://education.alberta.ca/media/160418/ela-pos-10-12.pdf

Alberta Teachers' Association. (2004). Student assessment and evaluation: The Alberta teaching profession's view. Issues in Education, 4.

Alberta Teachers' Association. (2006). Educational accountability position paper. Retrieved from https://www.teachers.ab.ca/About%20the%20ATA/WhatWeThink/PositionPapers/Pages/Educational%20Accountability.aspx

Alberta Teachers' Association. (2016). The future of social studies: The voices of Alberta teachers. Edmonton: Author. Retrieved from https://www.teachers.ab.ca/SiteCollectionDocuments/ATA/Publications/Research/COOR-101-11%20The%20Future%20of%20Social%20Studies.pdf

Alberta Teachers' Association. (2017). Recounting student success: Rethinking educational accountability for public assurance in Alberta schools. Edmonton, AB: Author. Retrieved from https://www.teachers.ab.ca/SiteCollectionDocuments/ATA/Publications/Research/COOR-122_Student-Success_2017%2002.pdf

Allison, D.J. (2015). School choice in Canada: Diversity along the wild-domesticated continuum. Journal of School Choice, 9, 282-309. DOI: 10.1080/15582159.2015.1029412

Bosetti, L., & Butterfield, P. (2016). The politics of education reform: The Alberta charter school experiment 20 years later. Global Education Review, 3(2), 103-119.

Bosetti, L., & Gereluk, D. (2016). Understanding school choice in Canada. Toronto, ON: University of Toronto Press.

Bosetti, L, Van Pelt, D., & Allison, D. (2017). The changing landscape of school choice in Canada: From pluralism to parental preference? Education Policy Analysis Archives, 25(30), 1-25.

Campbell, C., Zeichner, K., Lieberman, A., & Osmond-Johnson, P. (2017). Empowered educators in Canada. San Francisco, CA: Jossey-Bass.

CBC News. (2017, June 30). Alberta school board serves notice it will stop operating controversial Christian academy. CBC News. Retrieved from https://www.cbc.ca/news/canada/edmonton/camrose-christian-school-battle-river-bible-1.4185861

Council of Ministers of Education, Canada. (1997). Common framework of science learning outcomes: Pan-Canadian protocol for collaboration on school curriculum. Toronto, ON: Author.

Council of Ministers of Education, Canada. (2015). Agreed memorandum on a Council of Ministers of Education, Canada. Toronto, ON: Author.

Darling-Hammond, L., Burns, D., Campbell, C., Lin Goodwin, A., Hammerness, K., Ling Low, E.E., McIntyre, A., Sato, M., & Zeichner, K. (2017). Empowered educators: How high-performing systems shape teaching quality around the world. San Francisco, CA: Jossey-Bass.

Davies, S., & Aurini, J. (2011). Exploring school choice in Canada: Who chooses what and why? Canadian Public Policy, 37(4), 459-477.

French, J. (2016a, June 16). 'Unprecedented' Alberta school curriculum overhaul will cost $64-million. The Edmonton Sun.

French, J. (2016b, September 1). Province adding 15-question 'no calculators' section to Grade 6 math exams. Edmonton Journal. Retrieved from https://edmontonjournal.com/news/local-news/province-adding-15-minute-no-calculators-section-to-grade-6-math-exams

French, J. (2018a, January 10). Hitting the books: How Alberta Education is rewriting curriculum for the next generation of students. Edmonton Journal. Retrieved from https://edmontonjournal.com/news/local-news/hitting-the-books-how-alberta-education-is-rewriting-curriculum-for-the-next-generation-of-students

French, J. (2018b, October 18). Alberta ninth-grade math scores take a hit with new calculator-free portion. Edmonton Journal. Retrieved from https://edmontonjournal.com/news/local-news/government-edmonton-school-districts-release-2017-18-test-scores

French, J. (2019, March 26). Alberta Teachers' Association slams UCP education platform. Edmonton Journal. Retrieved from https://edmontonjournal.com/news/local-news/alberta-teachers-association-slams-ucp-education-platform

Government of Alberta. (2019). Population statistics. Retrieved from https://www.alberta.ca/population-statistics.aspx

Grayson Kocay, V. (2019, March 12). Evaluating best practices in large-scale assessment. EdCan Network. Retrieved from https://www.edcan.ca/articles/large-scale-assessment/

Hiemstra, J. (2017). Alberta's pluriform school system: Beyond the "public-secular" versus "private-religious" divide. International Journal of Christianity & Education, 21(2), 95-113. DOI: 10.1177/2056997116676283

Indigenous and Northern Affairs Canada. (2010). First Nations in Alberta. Retrieved from https://www.aadnc-aandc.gc.ca/eng/1100100020670/1100100020675

Kachur, K. (1999). Privatizing public choice: The rise of charter schooling in Alberta. In T.W. Harrison & J.L. Kachur (Eds.), Contested classrooms: Education, globalization, and democracy in Alberta (pp. 107-122). Edmonton, AB: University of Alberta Press.

Klinger, D.A., Deluca, C., & Miller, T. (2008). The evolving culture of large scale assessments in Canada. Canadian Journal of Educational Administration and Policy, 76. Retrieved from https://journalhosting.ucalgary.ca/index.php/cjeap/issue/view/2907

Mackey, M., Vermeer, L., Storie, D., & DeBlois, E. (2012). The constancy of the school "canon": A survey of texts used in grade 10 English Language arts in 2006 and 1996. Language and Literacy, 14(1), 26-58.

Marynowski, R. (2014). From frustration to understanding: An inquiry into secondary mathematics teachers' experiences with government mandated examinations. (Doctoral dissertation). University of Alberta, Edmonton, Alberta.

Marynowski, R., Mombourquette, C., & Slomp, D. (2019). Using highly effective student assessment practices as the impetus for school change: A bioecological case study. Leadership and Policy in Schools, 18(1), 117-137. Doi 10.1080/15700763.2017.1384497

Mazurek, K. (1999). Passing fancies: Educational changes in Alberta. In T.W. Harrison & J.L. Kachur (Eds.), Contested classrooms: Education, globalization, and democracy in Alberta (pp. 3-20). Edmonton, AB: University of Alberta Press.

McEwan, N. (1995). Educational accountability in Alberta. Canadian Journal of Education, 20(1), 27-44.

Nagy, P. (2000). The three roles of assessment: Gatekeeping, accountability, and instructional diagnosis. Canadian Journal of Education, 25(4), 262-279.

Pelech, S. (2015). What does it mean to teach biology well? A hermeneutic inquiry. (Doctoral dissertation). University of Calgary, Calgary, Alberta.

Pennings, R., Sikkink, D., Van Pelt, D., Van Brummelen, H., & von Heyking, A. (2012). Cardus education survey: A rising tide lifts all boats. Hamilton, ON: Cardus.

Province of Alberta. (2018). School act: Revised statutes of Alberta 2000, chapter s-3. Edmonton, AB: Alberta Queen's Printer.

Raptis, H. (2012). Ending the reign of the Fraser Institute's school rankings. Canadian Journal of Education, 35(1), 187-201. Retrieved from http://journals.sfu.ca/cje/index.php/cje-rce/article/view/864/1166

Shirley, D. (2016, October 12). Learning from and beyond PISA: Toward achievement with integrity. International Education News. Retrieved from https://internationalednews.com/2016/10/12/learning-from-and-beyond-

pisa-toward-achievement-with-integrity/

Slomp, D. (2008). Harming not helping: The impact of a Canadian standardized writing assessment on curriculum and pedagogy. Assessing Writing, 13, 180-200.

Slomp, D., Elliot, N., Marynowski, R., & Rudniy, A. (2017). Alberta's student learning assessment program: An integrated evaluation. Executive summary. Edmonton, AB: Alberta Education.

Slomp, D., & Marynowski, R. (2019). Consequences and outcomes of policies governing medium-stakes large-scale exit exams. Assessment in Education: Principles, Policy & Practice. Manuscript under review.

SOS (Support Our Students) Alberta. (2019). SOS Alberta: Support our students Alberta public education advocacy. Retrieved from https://www.supportourstudents.ca/

Taylor, A. (2001). The politics of educational reform in Alberta. Toronto, ON: University of Toronto Press.

Thompson, M.B., Kowch, E., & Gereluk D. (2016, July 12). The Alberta public charter school system: A system of secret gardens. EdCan Network. Retrieved from https://www.edcan.ca/articles/the-alberta-public-charter-school-system/

United Conservative Association. (2019). United conservatives Alberta strong and free. Retrieved from https://www.albertastrongandfree.ca/

von Heyking, A. (2006). Creating citizens: History and identity in Alberta's schools, 1905-1985. Calgary, AB: University of Calgary Press.

Zabjek, A. (2019, Apr. 1). Jason Kenney's vision for k-12: Turning back the clock. AlbertaViews. Retrieved from https://albertaviews.ca/jason-kenney-vision-k-12/

Zachariah, M., & O'Neill, L. (1990). The Re-introduction of public examinations in Alberta: School context, reasons, implications. In Y.L.J. Lam (Ed.), The Canadian public education system: Issues and prospects (pp. 103-119). Calgary, AB: Detselig Enterprises Limited.